COMPU

BASF tape exchange receives mixed reviews

3480 vendor claims problem almost resolved

BY JOHANNA AMBROSIO BEDFORD, Mass. - BAS

DESPURE, Mass. — BASF Corp. is scrambling to replace hundreds of thousands of faulty 3480-class mainframe tape car-tridges that deposit a substance that gums up tape drives and

ers began to experience a lot

permanent write errors. After lot of finger-pointing, it was termined that the problem lay ith BASF tape cartridges. BASF Marketing Vice Presi-nt John Healion said the prob-m, which has affected hun-made of large customer.



IBM, DEC drenched in red ink

INSIDE



fleef to bundle routers

Executive Report — IS plays a leading role in the latest competitive weapon: Top-notch customer service. Page 71.

PC PROGRESSION 1486: The new deal in desktop design

Deaktop systems based on Intel Corp.'s 80386 processor family continue to reign as the anoint-ed system under most corporate purchasing stan-

ed system under most corpor dards, but recent trends in the 1486 market are leading many Fortune 500 companies to bump

the 386 platform. For example, 33-MHs 4 prices fell 37% from December 1990 to L ber 1991. In contrast, it took more the years for the price of 386 systems to a

Patience with CA pricing policies runs short

BY NELL MARGOLIS

ate flood of users leaving CA.

Long term, however, may be different story, as users — in-



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gs crash with a low-er nix workstation splan g a trio of new

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A lot of vendors are offering at I call the three lesses' - diskless. colorless and use-

CHARLES FOUNDYLLER DARATECH

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EXECUTIVE REPORT

savy and will increase as astomer service becomes a top factor for diffi

IN DEPTH 81 A report card on IBM's

ve major strategies. By loward Fosdick,

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EXECUTIVE BRIEFING

■ IBM and DEC delivered expected bad financial news last week, with both posting staggering fourth-quarter losses. IBM reported a \$1.4 billion loss for the quarter ending Dec. 31, while DEC revealed a \$138.3 million loss for the same period. However, customers are going easy on both compa-nies, in part because they, too, have been socked by the recession. Page 1.

■ An IS watcher's report card on IBM's SAA, Repository Manager, AD/Cycle, Systemview and the Information Warehouse gives the firm high marks for ideas but low grades for execution. Perhaps an Olan Mills' IS staffer put is best. "If had for the effort had been put into deliverables as has been put into deliverables as has been put into the other had been put into the first had been put into the put into the other had been put into the other had b into publicity, maybe we would have some-thing today." Page 81.

The danger of obsol cence makes today a l top PC a good candidate covering. Leasing portables is becoming attractive to users who are worried that they will be left behind the technology curve if they lock in with equipment our beautiful and the second

users Conferen want more pen-based pr ucts to start shipping t quarter so they can get p

ly replace the 80386 year's end as the des

IBM's Escon will show up at plenty of user sites

sies to sell to larger con s and to collaborate ir peers. Page 59.

og for a compe

are kept in the band, but yes, they

The 5th Wave



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Microsoft, Sybase ease system disparities

BY JEAN S. BOZMAN

SAN FRANCISCO - Both Mi SAN FRANCISCO — Both Microsoft Copy. a SQL Server for OS/2 Version 4.2 and Sybase, fin.: a SQL Server will now be based on the same Sybase soft-ware, analysis Sybase SQL Server 4.2. This will erase the most features between the two versions SQL server packages. The move is expected to boost user interest in SQL Server, which has sold only about 10,000 copies in the three years on the market, depile a major of the market, depile a major of the market, depile a major of the market.

Microsoft and Sybase held a ree-day conference here to ex-sin the planned overhaul of the



software stratesoftware strate-gies at Forrester Research, Inc. in Cambridge, Mass., said there is no indication so to resell the Sy-

soft, said he has not ruled out that possibility. Several new products de-signed to allow SQL Server to

ybase servers were also an-ounced by both firms. By the econd quarter, Microsoft will nip SQL Server Version 4.2, hich will support personal com-

A developer's lot will cost \$1,500, a 10-user system, \$3,000 and an unlimited-use sys-tem, \$8,000. Upgrade packages for current customers will cost \$600 for 10 users and \$1,600 for

\$600 for 10 users and \$1,000 for uniformed users. Version 4.2 will be able to access up to 46 bytes of memory—much more than the previous finit of 16th bytes. Support for more than 300 PC clones has been included, Microsoft said.

Also planned is Microsoft said.

Also planned is Microsoft developed product that will allow SQL

Server to access Sybsne bases on other platforms, in

ming systems.

weral standard Sybase feaweral standard to

IBM RS/6000 to break \$10,000 mark

BY MARYFRAN JOHNSON

SAN FRANCISCO es its big splash in the ded pool of low-end Unix stations this week with the reiling of a trio of new models the \$5,000 to \$10,000 price nge. IBM's current low-end \$14 000

The computer giant is also expected to unwell two midranga-files of the computer of the computing of the control of the contr

based operating system, AIX 3.2, will also be introduced. It will add a host of functions and features, including improved re-lational database performance, sarely at commercial custom-s. A price increase for high-d systems will accompany this lease, but sources said no price ite is expected on the low end. "This is very clearly a sub-antial release of AIX," said one S/6000 customer who was

The least expensive version of the low-end Model 220 re-portedly starts as low as \$4,195, although sources close to the company stressed that price covompany stressed that price cov-rs only the system unit. A us-ble configuration of the 33-dHz workstation, with 16M system of memory and 25 to 30 spectmarks in performance, is expected to cost more than

ast \$5,000 mark has become a reflecting necessity in the Unix orientation world. Yet industry salysts noted that recent low-and workstation introductions om HP and Digital Equipment orp, actually require infusions additional disk and memory to

reate useful systems.

"A lot of vendors are offering that I call the three "lesses" — iskless, colorless and useless,"

When RISC pays off



CV Data indicement and Charles Poundyler, periclear of Daratech, Inc. in Cambridg, Mans. wine of the
A color series of the
A col

ver, a technical consulting firm for the IBM midrange and RS/6000. "It's also clear that (the RS/6000 development team) in Austin, Texas, is build-ing a machine that will go after commercial transaction proce ing business in a big way."

ood with the bod

one commercial customers we already noticed improvements in system software sup-port, yet there are lingering problems with manne field service expertise.

down in a commercial applica-tion, it can have the same impact as if a mainframe goes down," said Robert E. Matthews, senior said Robert E. Matthews, senior vice president at Equitable Betate Estate Investment Management, Inc. in Atlanta, which runs a network of more than 20 RS/6000s.

Lagging behind the leading edge in price/performance has also cost IBM some business. A Rifled-Signal Aerospace Co. in Tucton, Ariz, a balf-dusen RS/6000s are now contambered.

Tucson, Ariz., a half-dozen RS/6000s are now outsumbered by 37 HP 9000 Model 720s. "It's definitely the price/per-formance of the 720s, but also the fact that HP doesn't load up on peripherals that only work on their machines," said Bill Daugh-erty, a system manager at Allied-

Even so, IBM managed to gain 5% more share in the Unix workstation market last year, according to preliminary figures from Dataquest, Inc. That gain from Dataquest, inc. I nat gam probably came at the expense of Sun Microsystems, Inc., HP and DEC, which each grew only slightly in market share, said Rikki Kirzmer, an analyst at Da-taquest. "We expect to see con-

Wellfleet connecting with smart-hub wiring vendors

BY JOANIE M. WEXLER

BEDPERD, Mass. — Determined not to lever business op-portunities prey to others involved in the militarycold revising in the militarycold revising tione, Inc. is catting death to have the its internet-weight pethod-ogy into high-end wiring halds Weilbest will reportedly first Newlifest will reportedly first Newlifest will revisionly half to the Meastern switching half. The restitutation will be in-nectated Networks Conference and Exposition '92 in Whalters incites Networks and Bytes (100 Meastron since last Au-pert incited relocks) BEDFORD, Mass. - De

gust' sinital reduct.

"Consolidating bridging and roating technology into our Bytes gars' is important." said Jim Haney, director of information systems at Whitpool Planacial Corp., in Benton Harbor, Milch.

"Knowing the "Pfellificel" restinguish was on Byter's plate is one reason we chose their his."

Haney said he intends to replace his Novel, inc. bridge sort ware with in-bub bridge or routeversets.

many at segmentary libraries entering a contract of a townships, Man-rector of a townships, Man-rector of a townships, Man-The Weithler and modules, on the other hand, will be a two-board townships and the contract of the con-board into which users can play several combinations of network will assistive your Weithlers's no-noting 64000-based rooter techniques applications in the through to in-comporate the worder's 1G bit of the component the worder's 1G bit of the component of the component of the com-position of the component of the com-traction of the composition of the com-traction of the com-traction of the component of the com-traction of the component of the com-traction of

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NEWS SHORTS

FCC addresses wireless LANs

FCC oddresses sylmetes LANs
The Federal Communication Commission last web proposed
to dedicate 220 MHs drysido spectrum to emerging technologies such as writeres look-area cartivona and advanced new
mobile techniques. The jains is opposed by current users of
those frequencies, how would be displaced to other frequencies.
The jains in a stop in a direction are god by Apple Computer,
the and others, which want 40 MHs are stoic just for wereless
data LANs. A schedule for moring centring users off the earmarked frequencies has not been set.

Knowledgeware out of the hole

Knowledge ware out of the hold of the control of th

Solbourne to lay off 100-plus

Solipcourrie to I cay OTT I UU-puts
The harth resilities of competition in the low-end Unit workstation mester caught up with Soliconne Computer, Inc. last
week in a restructuring last wife can see them to completone
the completone of 5,000 systems of the
unaffected by the restructuring, according to a spokesman for
the Longmont, Colo-based company.

NCR picks wireless integrator

The variation of the control of the

Tanchy woos continue unabated
Tanly Cap, warned that it will past a 20% drop in first-quarter
sales and revenue this work vs. the same period last year: it is
the firm is fifth straight quarter of earnings sides. Tanly said
in preparing to fife for an underwritten stock offering of 410
million of preferred shares, subject to approval by the company's board.

Systems Center answers IBM

Systems Center canwers IBM Nort seek at Commerce and Exposition 92. Systems Center, in: in expected to amonomic OS/2 workstation obstruct that uses IBM 1 Presentation Manage workstation of the seek at the seek

DEC to sell Cray supercomputers.

Cray Research, Inc., has granted Digital Evalpment Corp. the
workwise's rights to master, all and distribute Cray's Y-MP
EL appercomputing systems. The Y-MP EL system is an ensystem will begin immediately. DEC immonsted that it will
price the supercomputer starting at under \$350,000. Also,
press reports law tweels said Cray will amonace a plan next
ment to use IBC's Alpha che to power fits latest line of manstray partial supercomputers.

More news shorts on base 111

Storage Tek Iceberg edges near

Disk array may give IS managers a less costly way to store their data

BY JEAN S. BOZMAN

LOUISVILLE, Colo. - Store Technology Corp.'s formal entry next week into redundant arrays of inexpensive disks (RAID) for data centers could eventually give information systems man-agers a less costly way to store and back up large amounts of data — and consume less space

in doing so.

Getting the 1.6G-byte RAID installed; however, will take some time. Beta testing of the RAID, called Iceberg, has been delayed until the second quarter. Users who have not yet ordered Iceberg will have to stand in line Iceberg will have to stand in line behind dozens of others who have already signed up. Industry analysts said the first year's pro-duction of Iceberg, estimated at several hundred units, is already

However, some IS managers have decided to wait it out. They said they want to see Iceberg's said they want to see Incherg's reliability proven in beta-test sites. "We were one of the pio-neers in the use of Storage Tek's automated tape library." said Keith Crawford, manager of computer operations at Deere & Co. in Moline, Ili. "But we're go-ing to watch what happens in the marketplace with these." Storage Tek too, can efford

marketplace with these."

Storage Tek, too, can afford to wait — a little. Prime competitors IBM and Fujitsu Ltd. are said to still be developing competing RAID devices (see story below). Only EMC Corp., a small Hopkinton, Mass., company, has a head start on Storage Tek. It recently unveiled a second-gen-eration IBM 3990-compatible RAID subsystem with a cap of 40G bytes [CW, Jan. 13].

fault-tolerant disk storage at a price of \$10 to \$12 per mega-byte, inciding he price of the disk controller, IBM 3990 sub-systems go for shoot \$15 pc megabyte, analysis sid.
"Too get mere gightytes per square foot of floor space with the RAID drives," noted Jim Porter, president of Disk/Treed, Inc., a Mountain Vew,

Calif., research firm. Iceberg is a com-bination of Hewlett-Packard Co. 54-in

Packard Co. 5W-in: disk drives and a Storage Tel-designed controller, said Robert Callery, a senior analyst at Tech-sology Investment Strategies Corp. in Framingham, Mass. Software, amounting to about 100,000 lines of code, tells Ice-berg on which drive data is stored and how to recover data should one of the drives fail.

Recovery on the fifty
The sidvange of Rull Die ritus.
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The Sidvan

Berkeley, RAID-5 software en-trails a complex series of software steps that read, modify and re-write data on the disks. But the process, which ensures that data will not be lost, imposes an amount of system overhead that

"Iceberg achieves the fault tolerance of a RAID design, but we have found a way to get out from under the 'write' penalties caused by RAID's error-detection features (Constant of the Constant of the Cons

RAID devices in their existing operating environment, Costain said. "This device looks to the IBM mainframe like an IBM disk drive and controller," he said. Barring any major manufacturing or operational flavard features of many data centers by 1995. "I think lebberg is agoing to be very influential," Porter said.

to be very influential," Prefer and included by the property of the conduction of th

specifications originally de-signed by computer scientists at the University of California at 'Don't feel sorry for IBM'

BM may not have a general-purpose disk array of its own for at least 18 months, but customers can look forward to price cuts that will make its existing generation of IBM direct-access storage devices even

IBM direct-scess storage devices even more structive, analysts contend.

"IBM" s biggest problem from [Storage Tek's] [Ceberg [disk array] in 1992 will be one of image. IBM has always owned the reference model for storage devices, and now Storage Technology will do that for a while," noted David Veltante, an salyst at International Data Corp. in Framing-im, Mass.

During 1993, loeberg will gain market share "at the expense of IBM," be predicted, adding that be expects IBM to deliver its own disk-ar-ray device in 1994. ray device in 1999.

IBM is about half finished with its general purpose disk array, observers said. It will complement the 9570, a RAID-3 device IBM intro

aced in September for the scientific market.

IBM might have been finished sconer, and

lyuts said, but there have been significant changes in its storage business, most notably its move to become an independent unit in December. Heading up Storage Products is General Manager Ray AbaZayyad, who had been head of IBM's Roim unit but returned to the storage

BMY Robes unit but returned to the storage and high-yellow (Combined microlarge and high-sold storage products into one or agraement belay-bend storage products into one or agraement belay-bend storage products into one or agraement belay from the storage of the storage belay from the product of the storage belay from the part or two belands Storage Tale to disk stray, but for a first a factority out them? In the sensetime, Forter said: They will be for a lot activity out them?

In the sensetime, Forter said: They will had for its storage of the storage o

JOHANNA AMBROSIO

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Itching to put pen to computer

Users say they're primed but waiting for hardware options to materialize

BY MICHAEL FITZGERALD

BALTIMORE - Poget Com-puter Corp.'s Richard Lull jok-

N.J. Hinton and a team of PSE&G workers have been investigating pen computing since January 1991, and they want to start a pilot project automating

Writing on the wall U.S. shipments of pr

Users at the confe erally agreed that a timetable in which vendors ship products the

ting) would be nd for us," said eph W. King, sistant vice

ance's office and mation systems in Neptune, N.J. King said the firm's sales rep-resentatives had

doing a lot of stuff back at their ho-tel rooms, and we

Users also some parties systems still lack standard soft-ware, data integrity, security, communications facili-

Proverbial penfest

the marketpiece, particularly as the smallest entry control particularly as the smallest entry control particularly. By the property control particular pa

extra \$148.

Sources close to Grid said the company will soon land sim agreements with IBM and NCR and that the company is rea ing a new pen product line. April will bring a sub-3-pound sub tebook priced below \$1,500. Grid refused to comment.

MICHAEL FITZGERALD

Microsoft, Intel set to boost portable power

is 25%.

Portables using the technology could be hitting the shelves of retailers as early as this summer, according to Intel. Thirty-

ensign that also covers other is-sues such as support for flash memory cards and data transfer between portables in the sizzling market for laptop and notebook computers. Dataquest, Inc. said it expects the size of that market

upset by NCR, which prom-ed to ship its System 3125 otepad in September but only serived clearance from the

At the heart of the plan is the Advanced Power Management (APM) specification, which ad-dresses complaints that the cur-rent crop of batteries for porta-bles are barely meeting user needs. APM allows the BIOS and

the operating system to sh critical on-system use, which Earlier efforts in power con-servation have focused on built-in hardware, with vendors trying

to circumvent energy problems by using features such as a disk

to double during the next three

we or processor that mo-wn when the keyboard is not The APM specification can be sed with any machine running between the comparison of the comparison between the comparison comparison of the comparison comparison of the comparison comparison of the comparison compar

ers, which may tenous based operating systems.

Microsoft also unveiled Inter-link, a data transfer utility avail-able to all ficensees of DOS 6.0 that use a client/server architec-ture to connect portables with one another or desktop PCs.

JAMES DALY

Compaq said to be readying high-end notebooks

year are still to come.

The new notebooks also indicate that Mass. He said the SL was a bot processor Compaq is in step with competitors relatively early in the SL's life. While numerous Compaq reverse a trend of being behind its

market.
"They're not first, but
they're not late," said George
A. Thompson, an analyst at Datapro Information Services Group in Delran, N.J.
"There's no question [Compaq] needs
those products," said Scott Stein, director
of PCs and workstations at Technology In-

MHz version comes with a 60M-byte hard drive and 4M bytes of RAM. Both machines are also expected to have a mone IBM Video Graphics Array-compate play and 3½-in. floppy drives. To drives will be upgradable.

MICHAEL FITZGERALD

CORRECTIONS

The Jan. 6 Technology Analysis repeated an error that appeared in Infosorid's Aug. 19, 1991, review of Microsoft Corp's Visual Basic. The correct Infosorid score for ease of use was excellent, and the overall score was 9.0.

inc. lawsuit. The story should have referenced a January 1991 suit whereby IBM alleged that Condisco illegally stripped and resold parts from IBM main-

On March 12, Oracle* recorded the highest TPC 425 tpsB Benchmark® B rate ever: 425 tpsB on a VAXcluster. 416 tps And the fastest TP1 score ever on January 21st: 416 tps on an IBM-compatible mainframe. Both were industry-standard tests on 8 gigabyte databases, independently certified by Codd & Date. All these benchmarks are further proof that 319 tps8 ORACLE not only runs virtually everywhere, it runs fastest everywhere. Fastest on PCs, workstations, minicomputers and mainframes. Fastest on standalone machines, or in a client/server configuration. So no matter what system you choose, you get the best performance and lowest cost per transaction. No small concern to managers trying to squeeze the most out of their MIS/DP budgets. 1-800-633-1071 Ext. 8116 t53 tpsB But don't just take our word for it. Call, and ask for the benchmark reports audited by Codd & Date: They certify the test results and give a full account of the testing methodology and system configurations. Just the thing for a little speed reading. adequate of Oracle Corporation, TPC Renchmost a a malament of the Transaction Processing Performance Council, All other sends on Sections Call for handware and understo managements, Openids the U.S.A., her writen North America, cell 5 400 668-1925 for pre-

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21.4 tps

Microsoft puts toe in groupware waters

BY ROSEMARY HAMILTON

Microsoft Corp. is gearing rival Lotus Developmen

Last week, a company otnicas promoting Microsoft's groupware strategy to East Coast industry analysts said the company has no intention of releasing a Lotus Notes-like product. Instead, it plans to provide a more open messaging environment as well as groupware application components, said Lurra Jennings, group product manager for work-group applications. Some initial products will be duced this year, she added. Notes is Lotus' key groupware ing and is considered the leader in

work-group functions such as electronic mail, database-like features, bulletin boards and development tools. Lotus claims to have sold more than 90,000 Notes licenses since the product's 1989 introduction.

"We won't be delivering what we call a reoprietary shell or monolithic applicaion," Jennings said, referring to Notes. Grossoware "is not a revolution where

people want to start over."

Jemmings said Microsoft will delive two unspecified work-group applicate a components later this year, with at least one amountement planned for the fire

to deliver bulletin boards, calendaring an conferencing functions.

These components are actually th second phase in a three-step strategy Jen

These components are accuraty the second phase in a three-step strategy Jennings detailed last week.

First, the goal is to establish what Microsoft calls a messaging infrastructure, which will be based on the company's Mail

Software's Network Courier, which Miposoft acquired last year. This so-called nérastructure will offer the necessaring management functions, from the transport specifications and directory

The next step is to roll out the workgroup components that will be integrated into Mail. At the same time, Microsoft will promote its Messaging Application Programming Interface so other developnce on taller work-group functions to the

The strategy's third phase had the west details. Essentially, Microsofans to provide capabilities to tailor and istomize an individual a groupware cavi



ZENITM dala systems Concept but

NT developers gain early input

BY JAMES DALY

REDMOND, Wash. — Microsoft Corpnas brought dozens of software developers into the early design process of its upcoming Windows New Technology (NT) operating system, hoping the added input will result in more tightly integrated applications and avert the persistent crashes that bedeviled early users of Windows

us, Microsoft technical personnel will seem preliminary specifications of variseem of the property of the property of superior of the property of the previous opsiting system development cycles. The rat-party vendors may in turn presenernative approaches to the updated opting system, which is expected to ship the second half of this year.

"The typical development process in volved third-party developers at a point where there was little opportunity for hem to make significant changes," saic ameron Mythrvold, director of developer elations at Microsoft. He added that the entire developer community will still be given a crack at new technical specifications at regularly acheduled conferences.

a payoack

Process forums "was not an attempt to backfill past problems." Microsoft was forced to offer a maintenance upgrade to Windows 3.0 only six months after its release when a large number of programs crashed soon after flashing "Unrecovertable Application Error" on-screen.

Developers said the bused about their no orly input.

early siput.

"I think we all recognize that we can get much further faster if we share important ideas and work the glitches out of the standards before they become problems for users," said Userland Software, Inc., President Dave Winer, who has participated the standards of the standards of the standards of the standards before they become problems for users," said Userland Software, Inc., the standards of th

tware vendors' input have ranged for minor tweaking of a messaging app ion programming interface to the e size readjustment of the command a tecture of the Object Linking as abbedding 2.0 structure, Myhrvold sais



"ORACLE SERVER NLM TAKES TOP HONORS FOR SPEED, RELIABILITY AND ROBUSTNESS* Sara Lee Corp. and PC Week Labs.

"The project at Sara Lee was ambitious. The original database application that the company wanted to downsize to the client! server platform was a subset of its order-entry

"In the end, ORACLE Server [for Net Wire]

"In the end, Ork.L.L. Server for New ware, was the only software that next all the stringent requirements for the application . . . "While each product competing in the shootout displayed strength in one area or another, ORACLE Server was at or near

"ORACLE Server's performance shined on database queries that required complex aggregations—sometimes more than twice as fast as other products...

fact an other products...

"In aducting DRACLE Server as the science,
the judges considered other factors such
as product manning and experience such
corporate databases, and the adections of freeend color to access the database.

"Judge sees through the NLM servisor of
DRACLE Server was must all trues considered
to be a close extension of the form's DR2 and
Disc products, which as more than one colorates
con closestence platforms."

-PC Week June 24, 1991

Hungry for more? ORACLE Server for rrungey for more? ORACLE Server for NetWare just recorded the highest audited TPC Benchmark, Braze ever on a PC— 43 tpaB, At that rate, the low \$2.590/tpsB is just icing on the cake.

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Timeplex looks ahead with broadband switch

BY JOANIE M. WEXLER

ROODCLIFF LAKE, N.J. — Timeplex, nc. said last week that it will join the anks of early broadband switch makers ning up to accommodate the bandful of serr eyeing high-speed backbone tech-

CHICAGO February 4 MINNEAPOLIS February 5

SAN FRANCISCO February 19

LOS ANGELES

HOUSTON February 25

ATLANTA

WASHINGTON February 27

PHILADELPHIA March 5

unt amount of bindwidth."
"The public services, Timeplex is boy
ing to capitalize on won't be available in
sunders 18 months, "said Dong Gold, as
subject at International Data Corp
'Elsowere, it is key that they have a prod
set that interfaces with carrier service
so the carriers will partner with them to
sell the switches to end-uner sites."



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BY ELLIS BOOKER

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HEWLETT PACKARD

Network limits dampen Apple multimedia hopes

BY JAMES DALY

SAN FRANCISCO — While Apple Con-puter, Inc. noisily celebrated the coming out of its Quicktiers multimedia extension at last week's Macworld Exposition, a lack of networking technologies able to handle beefy multimedia applications dampened the festivities.

spened the festivities.
"Networking is what a really going to be multimedia take off, and right now, i just don't see those necessary stan-ds and products falling into place."
I Nick Armett, president of Multimedia spenting Corp. in Santa Clara, Calif.

himedia Extensions or IBM's moti-tia extensions to OS/2, Quicktime fo-standards will be standards will be

networks never give a b signal; they just slow down. Yet many works use contention schemes that re

ame clock synchronization needed to in egrate voice, video and data. Chip stan-lards are nearly complete, though Apple recently scaled back its support of the tandard [CW, Dec. 9, 1991].

video compression rates have been achieved, but even when this data is crammed down to compact disc/read-only memory speeds of 1.5M bit/sec., that is a lot for a typical LAN to handle.

Those transmission rates are also is practical for slow networks such as A ple's Localtalk, Arnett said, and are ban by tenable for a 10M bit/sec. Ethern

DEC shows way to videoconference

BY MICHAEL ALEXANDER

MAYNARD, Mass. — Digital Equi Corp. last week disclosed plans to n a multimedia application that enable o six users to participate in videocor sices on DEC's reduced instruction

ences on EEC's reduced instruction set comparing (EEC) verbatations. Decapies, or DEC sound picture infor-mation network, trammels live or stored subto and video images using standard protection error European Section 1986. The multimeda application is as effi-cient way to ladd business meetings with-out the bother or lost time associated with traveling, and Jack Toto, muttimedia manufering manager of Unit-based soft a Two DEC and wave engineers original. You DEC and wave engineers original.

I wo DEC software engineers originally developed Decapin for use inside the company, Early adopters of the technology are likely to be the military, Wall Street traders and school systems, Toto predicted.

cludes a Decatation 5000 Turbochanne based workstation, 24M bytes of mem ry, 500M bytes of disk storage, an aud and video board, a frame buffer, a vide camera, a microphone and a network on nection. An entry-level DEC RISC-bass workstation with the minimum hardwa

workstation with the minimum instruction and a single-user Decapin license costs between \$14,000 and \$22,000.
"This is probably one of the most economical ways to do videoconferencing," and Barbarz Ells, who follows multimedia at MFWA Committing, Inc. in Palo Alto, Calif. "It's about one-tenth the price standard videoteleconferencing systems. Not everyone will have it on their de — it will be used in a videdcomfor-nom. In

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TECH TALK

Exploring CD-ROM

a The National Geographic Society is the newest member of the Maltimedia Publishers Group, a trade association formed to promote sales of compact discreedoutly memory (CD-98) formers (National Publishing to National Publishing to National Publishing to National Publishing to (NM with motion-film footsage: and "Presidents," in interactive encyclopedia of the personal and political lives of the country leaders. Both discs have suggested restail prices of \$140.95.

Super things to come

 The Central Weather Bu reau of the Republic of China (Taiwan) has ordered two Cray Research, Inc. supercomputers, according to the computer will be used for daily weather forecasting throughout the country, and the Y-MP EL entry-level system will be used as a file server. The Cray Y-MP8I will also run a relational database management system with a unique binary large-object attribute. The attribute is ide ally suited for storing data that has no easily defined structure, such as data and images from satellites. Cray said it has received five orders for the Y-MP8I and 40 orders for the Y-MP FI.

High-tech, high-touch

Andower Controls Corp., introduced what it claimed is the first graphic-style, touch-screen felding for terms, called the DCX250, he new display restems, Called the DCX250, he new display exhauster of the Control of

Computers polish Hubble images

Scientists use supercomputer, statistical inference to correct telescope imaging flaw

BY MICHAEL ALEXANDER

cientists at NASA's Goddard
Space Flight Center in Greenbelt, Md., are using a massiveby parallel processing supercomputer to restore images captured by the ill-starred Hubble Space Telescope (HST). The enhanced

Space Telescope (HST). The enhanced images are as good as the ones the HST would be capable of transmitting without the flaw that now causes the telescope to send back blurry images, the scientists said.

"I believe that taking a picture correctly the first time, but we are able to get resolution that is at least as good as the space telescope was intended to ab," said join Dochand, a computer scientist and deputy project manager for systems software research at the center's Space Data Computing Division. Using a formula for statistical computing the statistical computing the statistical computing the statistical computing the statistical computing and the statistical computing the

cal inference called the "maximum entropy method" and a massively parallel processing supercomputer, the scientists "Mubble were able to use available data to restore the missing data, Dorband said.

The image restorations are computed on a Maspar Computer Corp, MP-1 massively parallel processing computer massively parallel processing computer

massively parallel processing computer with 8,192 processors.

Scientists and others have been using computers to "deblur" images for at least 20 years, said Jan M. Hollis, an

Space Data Computing Division.
"However, in the past, people have
used scalar machines, and they have
d had to wait hours or even days to get
these kinds of results. We can do this
within minutes in certain cases and
within a maximum of a few hours," in

Soon after the HST was put into orbit in April 1990, scientists discovered



NASA scientists salvaged blurred images from the Hubble Space Telescope with a Maspar supercomputer

that the images captured by the telescope's "faint object camera" were outbury because of a spherical aberration P-1 caused by a mirror ground to the wrong specifications. Also, the \$1.5 billion telescope was found to be unable to distinuish very faint objects.

Now, NASA's scientists say this technical gaffe and the computer program they developed to compensate for

it may actually allow them to generate ave better images than might have been possible with the HST alone. One of the first stellar objects the HST was trained on was the R Aquarii and binary star system, which is considered be a sort of Rosetta stone for many astro-

physical processes.

The problem of the blurred images was compounded by the inability of the

faint object camera to accommodate the unexpectedly intense light emanating from R Aquarii, which in turn produced saturated, unreadable data, Hollis explained.

"The interest account with the images for a few months before we realized that the actual flaw in the Hubble Space Telescope belped us." Hollis said. "The point spread function of the telescope — how the telescope — responds to a point source of light — was spread over many recipion. We could statistically infer from the data from the area not a fectod by the saturated region what had actually happened in what had scrubly happened in what had scrubly happened in the statistically infer from the data from the area not a fectod by the saturated region what had actually happened in the same of the saturated region what had actually happened in the same of the s

what had actually happened in the saturated region."

The success of the image restoration project will have smells in other areas of image

purcossing as well as for parallel processing computers, according to Hellis. NASA still plans to repair the HST in late 1993 or early 1994. Some advocate fixing the telescope in orbit with an optically correct camera and an optical device that would fix the spherical abberation; others argue for bringing it

Intelligent computer may be reality by 2001

BY MICHAEL ALEXANDER

their minds to it, the first Hallike computer could be produced by the year 2001. At least that is what Intelligent Computers Systems (ICS) Research Group, Inc., a newly formed, nonprofit corporation based in Rockville, Md., believes.

The company was formed with financial help from an unspecified group of backers to raise money for the research and development of a Learning and Thinking Machine (LTM). The company plans not to build an LTM but to gonore the effects of others, and Peter Lockwood, a technical analyst and goldenman at [16 Research.

An LTM would be endowed with the control of the c

An LTM would be endowed with many of the same capabilities of Hal, the supercomputer depicted in Arthur Clarke's 2001: A Space Odyssey. The computer would be able to suck

up information by scanning books, tapping into on-line databases and listening to the spoken words of experts. It would also be able to independently draw conclusions from

what it has gleaned as well as learn from experience.
"One way to describe it is as a self-modifying, general-purpose expert system." Lockwood said. Unlike most expert systems that have rules written out explicitly by a knowledge engineer, the programmer instructs the LTM to focus its attention on specific information, and the ma-

chine uses whatever facilities are available to it to become an expert in that area. Over time, the LTM learns from its own operation and results, subsequently updating its knowledge base.

and one of the reasons is that it is generally assumed to be [a] long-term project," Lockwood said. "We feel that there are so many benefits to be gained

med to be [a] long-term projwood said. "We feel that n many benefits to be gained that someone ought to be working on it directly." The company was founded by a group of computer professionals who,

for reasons that are unclear, wish to remain anonymous. According to Lockwood, the founders believe that promoting research in this area will pay off with a prototype machine within five to eight years. The cost to build an LTM could vary between \$5 million and \$10 million, be added.

ICS Research is looking for proposals to design an LTM and has already identified Cognitive Modeling Designs in Rockville, Md., as having a promising approach to building an LTM.

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EDITORIAL

Playing hardball

one's ever accused Electronic Data ystems of being a wallflower, but its wsuit earlier this month against Computer Associates was a shocker none-theless. EDS' filing breaks with the company's normally austere image and makes it clear that it is mad as hell about its charges that CA committed fraud, violated license agreements and medalled with EDS customers

died with EUS customers.

Equally surprising was CA's "in your face" response. In a defiant reply, the largest mainframe software company dismissed the EDS charges as ridiculous and all but promised a countersuit.

roncuous and all out promised a countersuit. But there is more than a courtroom brawl at stake here. The case, if it ever reaches the courts, promises to be a barn burner, pitting one of the world's largest users against a vendor known to play hardball with its customers. We won't comment on the merits of the case,

we won't comment on the merits or the case, but the issues are significant for vendors and us-ers because they involve the basic economics of business consolidation and outsourcing. At issue is just how much a software company can dictate what its customers do with a software

icense once they sign a contract. The answer is fundamental to the economics of outsourcing.

Third-party outsourcing contractors can as-me dozens, or even hundreds, of software lies when they take over a data center. As such, they're pros at maximizing economies of scale, and that's one of the appeals of outsourcing in the first place. Why pay license fees on five copies of the same tape librarian when one copy can serve five customers just as well?

That question is what makes outsourcing so bone-chilling for software vendors such as CA, which historically has derived a large part of its revenue from maintenance fees. The anxiety only ets worse when they look at forecasts such as Merrill Lynch's estimate that outsourcing revenue could nearly triple during the next four years.

Expecting outsourcing vendors to maintain or

enegotiate every license they acquire is no more realistic than expecting bus companies to reim-burse carmakers for every passenger who chooses not to drive. For savvy software develop-ers, this case points up the need for more creative licensing schemes that rely more on how the software is used and less on traditional criteria such as the number of users or the class of machine the software supports. For users, there will be in-teresting financial consequences. If CA prevails, it will no doubt hike up the cost of outsourcing contracts that involve license transfers. If EDS wins, it should make the economics of scale avail able through outsourcing even more attractive.

The industry has skirted this issue for a long

ane moustry has skirted this issue for a long time, but now some lines must be drawn. With mainframe sales stagnant and interest in out-sourcing on the rise, users and vendors will begin to fight over every dollar.





LETTERS TO THE EDITOR

A good opportunity

I have been reading Computer-world since I got into the com-puter field in 1976. I'd like to point out that there is an oppor-tunity for the computer industry to do a great service for mankind to do a great service for manusus and, in the process, bring profit and glory to itself. The opportu-nity is in the area of a standard-ized Systems Application Archi-tecture-like interface to PCs for paraplegics.

Some puraplegics are 100% paralyzed and can move only their eyelids. Because my broth-er worked as an orderly at the estler Institute, a prestigious ter that treats the worst center that treats the worst cases, I know for a fact that there is no computer hardware or soft-ware at all for extreme psraple-gics. The way a paraplegic com-municates is with flash cards. en the nurse points to a letter

the paraplegic wants to use, a blink of the eye is the sign. If Bill Gates or Philippe Kahn or Steven Jobs, etc., had a relaive who was a paraplegic, cer-ainly Windows NT or Borland's IDE or Next would have a para-plegic mode. A lot of paraplegics are veterans who fought in wars to make us free. Isn't their sacri-fice worth, say, delaying IBM's OS/2 Release 2.0 an extra qu ter, to add an industry standard paraplegic interface?

Robert Glose Dreyfus Service Corp Jersey City, N. L.

Arrows on target

It was with great amusement and, I admit, some concern, that I read your editorial cartoon in the Dec. 16 issue. The idea that

ild new inform

Businesses do not want or need "Star Wars", types of tech-nology to improve productivity. Organizations that s use information tech

Overlooked Amiga

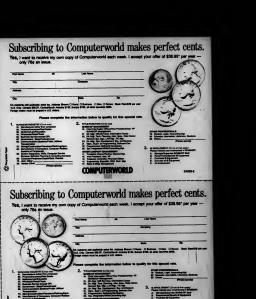
In "Apple stocking antipiracy ammunition" (CW, Dec. 16). I was made aware of a new Yei in Commodore Business Machines, Inc.'s line of products: the Atari ST. This perticular mistake points out a biss in mainstream computer journals that does us all a disservice. The PC market is clearly to choose, with a liter order pertu-tation dominated by Apple Com-puter, Inc. Clearly, the reporting in a journal that covers. PCs (even from an 18) perspectives

when you consider ust are actually on the

I bought an Amiga in 19

despite its incompetence in a keting. If accurate and compl reporting helps bring a broa range of quality third-party in ware developers to the Am platform, the market will be r er for all of us. Keep this in m

Computerworld welcomes comments from its readers. Letter may be edited for brevity an clarity and should be addressed to Bill Labrin, Editor in Chie Computerworld, P.O. Bax 917. 375 Ochituste Road, Francis Labrin, Max. 01701. Fax sumble (508) 875-8931; MCI Mai COMPUTERWORLD. Pleasielette Read, Francis Labring Labring





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It is, to continue in their words, "a stunning announcement" that "leaves its open systems competitors in the dust."

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lts attributes include standards compliance, built-in scalability, network connectivity and truly impressive levels of performance—including the highest. SPECthruput number on open systems to-

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SPECmark/SPECthruput (Max)	205	39	78	72	91
AIM User Loads	1381*	65ª	AP	310	NP
TPC-B(Oracle)	112°	NP	NP.	NP.	MP
Max. Disk Capacity (GB)	179	58	40	22	52
Standards Compliance			1		
POSIX Certified UNIX	YES	TES	NO.	YES	NO
OSInct Interno Registration	YES	NP	YES	YES	· NP

Surprocessor, cretified and tested by AIM * Birth one processor, stalliprocessor in a construction of SC 30 to a AIP to San Balanteet.

requirements. And it manages even the most

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ost tems solutions for some of the most complex data-intensive environments in the world

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In Demark, PHI (Pinane for Danish Industry), highly regarded throughout the financial community for the innovative ways it combines information technology with marketing, chose the InfoServers for an ORACLE client/server environment that integrates open systems technology with over 100 PCs.

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systems alternative.

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SYSTEMS & SOFTWARE

COMMENTARY Sam Albert

SAA poised as survivor

No stampede to IBM's Escon

Users get fiber-optic option, although many will wait to use it

One-switch

support



Delta loves to save, and it shows



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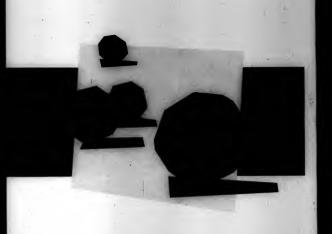
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- II 1 900-262 9069 to liston to the development announcement analys





DG boxes auctioneer's 'old reliables'

BY KIM S. NASH

LONDON — Dark cherry panel-ing, thick velvet drapes and a full-liveried doorman outside the posh King Street address of Christie's surtion ristie's suction house exude ssic reliability.

conter. Mannon & Woods Ltd., as the 226-year-old company is formally named, has used Data General Corp.'s proprietary Edipse MV Dones for the runs the name software if developed in-bouse in the early 1980s. "Our clients envision business by quil pen but still expect the laind of service they can get at a modern busin," said Andy at a modern busin, as in the correct Christie's." To preserve the sum of Colliniatie's.

tor at Christie's.

To preserve the sura of Old World tradition in its 94 offices worldwide. Christie'a shrouds its DG Dasher personal computers and Eclipse terminals in wooden boxes. Hidden though they may be, those "worthorse" MVa will be around for another

limgton.

Despite the strong trend in e industry right now to swap opcietary systems for some row of Unix. Christic's 15-lipses and a few hundred DG sahers that service 800 users ridwide do the job better than her machines might, Billington

said.

How so? Scalability, be said.

Christie's runs its custommade software on every DG muchine it owns, from two large Eclipse MV/40000 series models (one in London, one in New York) to a low-end MV in its five-user Dusseldorf, Germany of-

tree. "One could not do that on other machines," Billington said.

The core application at Christie's — a Cohol inventory/ accounting program built inhouse more than 10 years ago — has special provisions to account

For example, someone with a painting for sale will bring it to a local office, where be gets a recipt. Clerks then enter key in-formation. The item is assigned to a particular metion, and bid-ding begins.

SOPTWARE SHORTS

VAX 9000 users suffer headaches there are 300 VAX 9000 sys-tems installed worldwide and said 14% of those sites respond-

ng VAX

BY SALLY CUSACK

MAYNARD, Mass. — Digital Equipment Corp.'s mainframe entaches may not be over, ac-ording to a record study by an neigeneast survey firm. According to date gathered y Reliability Ratings in Need-ann, Mass., customer problems spear to center around the mul-cinip unit found in DEC's 2-ear-old, top-of-the-line 'WAX 1000 series.

DOO series.

The study was completed in eccember, and all of the multinip unit failures reported in the
unvey occurred in systems inalled in that year.

According to Reliability Ratgs, almost half (46%) of the

iures reported occurred in the cond half of the year. About % of the VAX 9000 CPUs at 37% of the WAY 9000 CPUs at survey sites experienced a hard failure of some type, the report said, and most of the failures were recorded on the 9420s. The multicibil juntils are a core technology in the 9000 systems and are comparable to the Ther-mal Constitution Medaless used in 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 to 1000 to 1000 to 1000 to 1000 1000 to 1000 1000 to 1000 to

d increased testing and burn periods [CW, Dec. 24 990/Jan. 1, 1991]. Reliability Ratings estimate Dec. 24,

vey sites were attributed to the multichip units in systems in-stalled in 1991. While VAX 9000 users were

wane WAX 9000 users were reluctant to go on record con-cerning problems with the sys-tem, an operations manager at a large U.S.-based food processing plant said be had experienced "a high number" of failures con-

there are 300 VAX 9000 systems installed worldwise and said 14% of those sites responded to the study.

The tabulated results show that more than half (55.5%) of the failures reported at the sur-

System 3000 family to support Lucid software

on development or ors. The 3000 seri

Software 2000, Inc., a developer of business software for IBM's Application System(400 mid rest, has formed an alliance with Delevite & Ton aution's their-largest professional services dischessed and their states and the services to the companies' motion Model of the services to the companies' motion Model of the services will be installed at joint technology cent yet me with the services will be provided at these buctoins.

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for affordable AS/400 mirroring.

Albert

CONTINUED FROM PAGE 29

CONT INCLUSE PRIME WINGS IN CONTROL PRIME WIN

chiectural underpinning that makes them all perk. What's not to like about SAA' The consistency? The connectivity? The more than 90 implementations of national and international standards? Before SAA, IBM's user interface was the C; prompt. Today, even Microsoft's Windows is built around SAA's Common User Access definitions. And CUA '91, amonomed in Speambor, Is-wardy definion the object-ortenique liner-wardy definion the object-ortenique liner-

faces the industry will be moving to. Even if you agree that the perception of SAA (proprietary and limiting) is out of sync with its reality (open and evolving), that still leaves IBM with a big decision. suld it try to do a better job of commu-ating about SAA or just stop talking out it and focus on the openness that it vides? If the September announce-nt is any indication, IBM is already

oving toward the latter. But if IBM drops SAA as a selling

HAT'S NOT to like about SAA? The consistency?

point, it will certainly not stop pushing its evolution as in architecture. As of company can choose whether to fall shoot as capacity can contain the company can choose whether to fall shoot its open capacity can be company can contain the company can be compa

expect it to say so.

No stampede to IBM's Escon

CONTINUED FROM PROE 29 belief gow with contents or considering on the contents or considering or remodeling entire to go to the Down Propose of the Contents o

IBS Conversions, Inc. has enhanced its Translator software tools for converting mainframe and CICS applications to the IBM Application System/400 midrange

platform. Additional language translations in-clude RPG II to RPG/400 and Cobol Re-port Writer to standard Cobol 85.
IBS Conversions
2628 Butterfield Road
Oak Brook, III. 60521
(708) 571-9100

Riconem Systems, Inc. has improved its Riago-HoO backup and restore software. Riago-HoO backup and restore software, each restore, improved tipse label called some of restore, improved tipse label called some profile societies upport. The software also supports multiple processors, which was a support an unitiple processor. March 3.1 and 44.999 thereafter. Riconem Systems 12 teves Drive Martine, N.J. 00053 (000) 506–5027

Demax Software, Inc. has released new versions of its Detective security soft-

versions of its Detective security soft-ware products.

System Detective 2.1a includes en-hancements to the Automated Opera-tions module, with greater flexibility for ruise-based response to system events, and the Interactive Session module, which now allows the systems manager to close a user's session with a single key-stroke. The Challtaff Help deals module

Another motivation for users adopting

Exon this year will likely be the pricing competition that areas when third per-ceptions that the pricing competition that areas when the per-tection of the percentage of the percentage and the percentage and their competing. Exon controllers and DMS devices during the second and their question. To as Schene, Com., but a better from the percentage and their devices (see story page 25). TEC'S Callery and the utilization of the percentage and the

NEW PRODUCTS - SOFTWARE Unix software

Pricing for System Detective ranges from \$245 to \$10,600, depending on cen-tral processor. Challetalk costs between \$245 and \$3,900. Precision Visuals, Inc. has announced its PV-Wave Point & Click product for Sun Microsystems, Inc. workstations running Microsystems, Inc. workstations runni Open Look and Motif windowing system PV-Wave Point & Click is a visual da

The company also upgraded its Con-etion Detective network tool, which an-race traffic at the packet level and iso-PV-Wave Point & Click is a visual data analysis software package for nonpro-grammers. It allows quick graphical inter-pretation of large amounts of data, sc-cording to the firm. A single floating license costs \$4,500. Precision Visuals 6230 Lockoust Road Boulder, Colo. 30301 (303) 530–9000

alyzes traffic at the packet level and iso-lates faults. Pricing is \$4,800 for the first local-area network segment and \$3,600 for ad-ditional segments. Demark Software Suite SOO 999 Balore Way Sam Matteo, Calif. 94404 (415) 341-8017

BMC Software, Inc. has announced the availability of Copy Plus for DB2 Version 3, Release 1. The high-speed copy utility offers in-creased performance and support for mul-tiple copy statements and multiple data set mospartitioned table spaces. A table space validity checking function is also in-cluded.

space valuely checking function is also in-clared.
Thered pricing for a perpetual license startast \$12,00.
BMC Software
Box 2002
1 Sugar Creek Center Bird.
Sugar Land, Texas 77487
(713) 240-2800

Applications packages

Lucas Management Systems, Inc. has announced Artenis 9000/EX, an enhancement of its project management software for IBM mainframes.

for IBM mainframes.

The software is redesigned to exploit recent changes in the MVS and VM operating systems, according to the company. It requires 30% less system resources and features improved applications development functions, including an enhanced Artenia-SQL interface and a new interactive structure editor with automatic roll accordance.

up processing.
The product costs \$33,435 per use for a three-user license.
Lucas Management Systems Suite 350
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Fairfax, W. 22003
(703) 222-1111

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Firms seek safety in leased portables

BY MICHAEL FITZGERALD

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GIS vital in utility's duel with competitor

ONSITE

BY CAROL HILDEBRAND

There's feuding in the Lubbock, Texas, utility corral, and one of the contenders, Lubbock Power and Light (LP&L), is counting on

Application links Macs, Microsoft SQL server

BY JAMES DALY

BOCA RATON, Fla.

in fully installed, will not only to the company's utility and er lines more accurately but also enable the firm to woo customers. The city-owned ty is in the unusual position awing competition in town, sparks are flying as LP&L for customers with South-

XDB: DB2 Development on the PC.





It Works

COMMENTARY lesse Berst

What Windows NT is and is not



for OS/2 Version 2.0.
Since Windows New
Technology (NT) is Microsoft's answer to OS/2,
you can expect the noise
o rise in Redmond as well. In fact,
arméd the companies are plotting
ng booths" at the Comdex/Spring

"Sealing booths" at the Condent/private (20 days. to the Condent/p

operating system for servers and high-end workstations. Designed to accommodate the Designed to the Designed

Compactfullty, performance
The protects there may be considered.
The protects the considered considered to the considered considered to the considered considered to the considered conside

- Power. NT is a full 32-bit, mult

a Power. NT is a full 32-bit, multitaster, important properties of the properties of

will be built into Windows NT. A special server edition will provide client/server capabilities for those who need them. • Security. Access control lists and oth er security features are built right into the

certains yestem.

Robust error and exception handling. NT should make programs more reliable and easier to test because it supports exception handling.

Those are some of NT's most important goals. The next question is, "Can Macrosoft delivers."

Content asserts for the Content as and a form of the Content as an are not to form of the Content as an are not to the Windows inserting. Do not the Windows inserting the Content as an are not to the Windows inserting the Content as an are not to the Windows inserting the Content as an are not to the Windows inserting the Content as an are not to the Windows inserting the Content as an are not to the Windows inserting the Content as an are not to the time.

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Safety in leased portables

CONTINUED From Prof. 39
ed that the company did a lease-wa-buy
analysis and found little difference between the two options but picked leasing
because of technology issues.
Baxter Microscam, a Sacramento,
Calif.-based division of Baxter Healthcare
Corp., also turned to leasing notebook
because of lear of using dosolete technol-

ogy.

Baster Microscan has 60 Compaq LTE
386/20 Model 60s distributed among its
North American field representatives.
Originally, the company bought the portable IBM Convertible.

"They were obsolete soon after we
bought them, but we used them well past

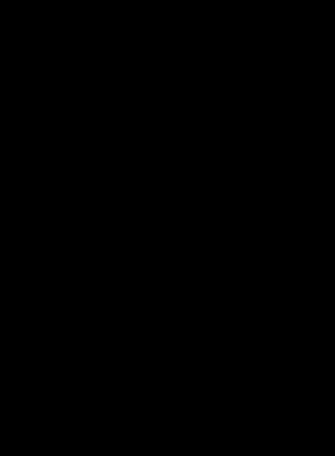
Customers use Notes in strategy CONTINUED FROM PAGE 39

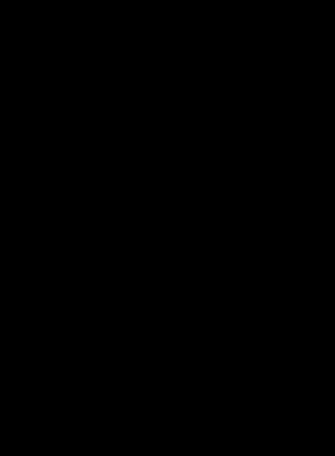
tomer then grow to include a spreadshe that is the analysis [of the account] Goldman said. "Then it may be an imag of [documentation] that is not convenien by available."

by available." Peoplesoft, Inc., which sells payroll and personnel software, is using Notes to add another level of support for its customers, according to Rick Bergquist, vice Persident of technical services. Notes is used as the internal electronic-mail system as well as a hot line management system. Customer data in stored and the services of th

their useful technical life because they were on the books, "add Severa Rock, de Montreas Rock and Severa Rock, and Rock and Rock

then not up views to look at data any number of ways. Bergodiest said, but he was a large of the said of the said







White Paper

uniVerse: DELIVERING A MATURE. Unix APPLICATION ENVIRONMENT

CLEAR VISION

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very clearly. Its future is business.
We see the needs of UNIX

very clearly. It needs business applications. Now. VMark offers access to

3,000 proven, reliable commercial applications. And VMerk's uniVerse* software lets you run thom on every major (INIX)

uniVerse** software lets you run them on every major UNIX platform world-wide. The uniVerse application

The unaffere application environment will felt you talle full administige of Support of industry stendards, open systems, and leading edge technology such as RISC and multi-processing hardware. Distributed processing using TCPIIP and distributed processing technology. Support for institution. Soon-based graphical user interfaces to graphical user interfaces.

using TCP/IP and client-server technology. Support for intuitive, icon-based graphical user interface, large CSF/Motil." Access to popular applications like WordPerfact." And a RIBMS that will change your definition of relational.

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Introduction

Unix, in its many guises and ever-changing forms, is a complex technology for even the most skilled Information Systems (IS) department. At a time when IS budges and payrolls are shirnking, mastering Unix becomes even more difficult. And just as there is no denying the complexity of Unix, there is also no denying its staying power.

One way to harness that power while taking advantage of existing systems is to implement universe, a native Unix application development environment which enables software developed in the Pick environment to work on any Unix system. universe users can use their existing software or choose from a suite of 4,000 other muture applications.

uniVerse also offers a conducive environment for developing new Unix-based applications. It includes a three-dimensional database file structure, data dictionary and query language. In its native Unix environment, it allows developers to take advantage of Unix features, including the full range of software tools, communication orgions and from end technologies.

Despite its strengths, uniVerse still faces some obstacles. Like Pick, it suffers from a lack of name recognition. It also needs to reach new markets. Whark Software, Inc., which produces uniVerse, must continue its largely successful efforts to market to VARs and systems integrators while stimulating applications development from new sources.

Succeeding in an open systems IS environment is another challenge for VMark. So far it has implemented in uniVerse such standards as Posix, Motif, X and TCP/IP. In order to fully enable connectivity with other heterogeneous databases, the company is actively implementing appropriate standards societied by the SOI Access Grove.

uniVerse is currently at a crossroads. VMark expects continued growth in its traditional business and if uniVerse is thoughtfully developed to meet a wider range of user needs, it will be a productive partner of Unix for the long term.





THE RESULTS OF A RECENT INTERNATIONAL DATA CORP (DOS SUNYEY OF 20) MULTI-LESS COMPUTER SYSTEMS SITES REVEALS THAT 80 PERCENT OF THOSE SITES WILL ACQUIRE ONE OF MORE ADDITIONAL MULTI-LISER SYSTEMS WITHIN THE NEXT THREE YEARS FURTHERMORE, 99 PERCENT INDICATE THEY WILL BE OPPLICATIONS APPLICATIONS FROM THEIR CURRENT SYSTEMS WITHIN THE NEXT THREE YEARS FURTHERMORE, 99 PERCENT INDICATE THEY WILL BE OPPLICATIONS APPLICATIONS

UNIVERSE; DELIVERING TEMS TO THESE NEW MULTI-USER SYSTEMS. IN NOT SURPRISINGLY, UNIX IS

A MATURE Unix APPLICATIONS

ENVIRONMENT

ISH IN THIS DYNAMIC COM-PUTING ENVIRONMENT. AL-MOST HALF (46 PERCENT) OF THE SITES SURVEYED BY IDC SAY THEY ARE CONSID-ERING UNIX TO SOME DE-GREE USERS WHO WISH TO REALIZE THE BENEFITS OF

IN A POSITION TO FLOUR-

Unix SYSTEMS AND A MATURE SUITE OF APPLICATIONS MAY DO WELL IN CONSIDERING univiews, A MATURE INFEMENTATION OF THE PICK ENVIRON-MENT IN Unix. III THE PICK ENVIRON-MENT IN Unix. III THE PICK ENVIRON-MENT IN AS BEEN REGARDED BY A ROWNELDOCARIE. FEW PICK CYPE 20 YEARS AS AN EPTICIENT PLATFORM FOR DEPLECIONED, AND DEPLOYING APPLICATIONS THAT "THE OFFICE OF THE ADMINISTRATION OF THE ADMINISTRATION

nately ran on its own proprietary operating system. In following the grow ing acceptance of Unix in the commercial marketplace, VMark Software, Inc., of Natick, Mass., has taken Pick's application development and delivery environment and implemented it in Unix in the form of uniVerse Thus uniVerse is the product of merg-

ing the strengths of Pick — an integrated database/file manager, a data dictionary and a query language - with those of Unix, which has multi-vendor support across multiple platforms

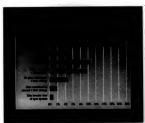
Why implement a native Unix version of Pick? Because Pick, like Unix, was developed over 20 years ago, and offers a ture environment with many available applications. Via its compatibility with Pick, uniVerse has access to over 4,000 applications developed exclusively for nent. This allows VMark to focus its energies on offering the best ossible product, an application design, development and delivery environment (ADSF), while other vendors with operating systems' expertise deliver the Unix uting system component. What are the components that make

up uniVerse and why is uniVerse a good AD*E? The major components of uni-Verse include the following Pick-compatible elements: database; file manager; query language; command language, processor (i.e., shell); BASIC compiler and run-time environment, and distributed database support.

DATABASE AND FILE MANAGER While VMark has implemented the

Pick Application Program ming Interface (API) for uniVerse, the database and file er system is the cornerstone of uni-Verse. The benefits of doing a complete enulation of the Pick file system on Unix are twofold. First, as far as the application and the developer are concerned, the file system has not changed. System data is still accessed in the same way. Second, because the files created by uniVerse are normal Unix files, standard utilities may access them, and special disk partitions do not have to be created. Unix com mands such as CP (copy), MV (move/rename), and TAR (tape archive) all work on uniVerse files. In addition, third-party up and system adr ninistration utilities all work on uniVerse files.

mt, the size of



Almost half (46%) of size surveyed by IDC indicate an inserest in sequiring Unix. Many of these sizes are nearestal partitions users.

the data sets may be constantly changing. uniVerse allows for the space allocation of files to be dynamically modified without system operator intervention. Highand low-water triggers may be created so that file size is changed automatically when the number of records reaches ei-

The uniVerse database manager vstem relies heavily on data dictionaries A chita dictionary is a file that is defined and created by the application developer, and stores "metadata". Metadata may be best thought of as data describing the data. Because the data elements within uniVerse are typeless, the data dictionary contains information on how specific functions operate on the class of data in

ther of the triggers

RETRIEVE, a standard part of uni Verse, is its database manager and rep writer/query language. RETRIEVE has both English-like sem The main structure behand RETRIEVE is the sentence. In the same way Engl has sentences consisting of nouns and verbs. RETRIEVE has sentences con posed of the user's data (nouns) that are ted on by verbs that are provided by RETRIEVE Fach sentence may then

be stored as part of a vocabulary file.

COMMAND LANGUAGE AND PROCESSOR While its database and file manag the heart of uniVerse, the command language and processor are the elements most visible to the users. If the system administrator wishes, uniVerse's com-

mand language may be as close to the computer as the user ever gets, uniits site-expandable command language that allows users to expand it to me their individual needs The vocabulary (VQC) file is the key stone of the command language and pro-cessor. The VOC file contains descrip ons of the verbs, key words and files that are available to the uniVerse user

The contents of the VOC file make up the command language. The comma processor uses the VOC file to interpret each of the commands as they are entered by users. As is the case with Unix shells, VOC files allow users and/or system administrators to customize the env ronment. And, as is also the case with Unix's "aliasing" facility, the system adstrator may add verbs that, in turn

represent a longer command string uniVerse also provides command histories As with Unix, a predetermined number of instruction lines is maintained in a list, in the case of uniVerse, up to 99 instruction lines can be kept. In the uniVerse vocabulary, each line is a sentence and is stored in the VOC file. Users may then tie together a series of two or more sentences to make a paragraph which, in turn, is stored in the VOC file. Both sentences and ragraphs can be given nicknames. The nicknames are used to execute the actions within the sentence or paragraph. By starting with the smallest components of the command language, users can build a customized language within uniVerse that meets



PROGRAMMING LANGUAGE Balant in the BASIC is the primary programming language for the uniVerse system. However, uniVene's BASIC is about as close to the interpreted BASIC language used for teaching as a Porsche is to a Model T. While there are some similarities, such as asse of use, uniVerse BASIC is designed for application development. The non-uniVerse BASIC is intended to be a teaching language and not to write commercial

applications While uniVerse does provide an editor for developing BASIC programs, developers are free to use other editors. Experienced Unix developers will likely opt for VI or EMACS, though any editor that can read and write ASCII files is acceptable. uniVerse's use of ASCII files for programs permits developers to use both Unix and third-party application development utili-ties such as Source Code Control System

While VMark's BASIC is compiled, it is fled in the common sense of the not compiled in the common sense or use word. Rather than producing executable ry files, the uniVerse BASIC compiler produces an intermediate token stream. It this token stream that is executed by the BASIC environment. Because the n stream must be interpreted each time the peneram is executed, it is not as

efficient as machine language. However, it is much more efficient than an intered environment. Once the program has been compiled, it may be execute with the familiar RUN command

While the intermediate code is not true object code, uniVerse developers can treat it as such. A program may be catalogued with uniVerse, Catalogued programs are advantageous as they can be ca other code segments and they facilitate

the reuse of the code seg DISTRIBUTED DATABASE SUPPORT

Information systems installations are stributing their databases across a multi tude of platforms. Some sites have worked off a carefully planned schedule Other sites are forced into distributed en vironments as departmental and personal systems are added to their networks. As a result, many users do not know or care where their data physically resides. Their overriding concern is that they be able to transparently access the data when

uVnet is uniVerse's distribute base access scheme. This optional prod-uct, using the de facto standard Transmis-sion Control Protocol/Internet Protocol (TCP/IP), permits easy access to data th

need it

ay be distributed over mult

ple systems running uniVerse. VMark has simplified the ocess of communicating with remote file systems by sinating the need to pro vide the full address and file name each time a remote file link is established. A user may insert an entry, which serves as a nickname to the ren file, into the VOC file. Once the VOC file entry is create the user may refer to the nickname through both cor line entries and BASIC pro-

uniVerse's FUTURE

The sites responding to IDC's survey say they do not rely heavily upon VARs and external consultants, which are the leading distribution channels for uniVerse. This is not necessarily bad news for VMark. While the company

has its share of large system es, it is not primarily targeting large ms with internal program tise. Instead, it chooses to deliver turnkey software solutions to small-to-medi ser sites that lack the ability to write or rite programs internally. Clearly, less ized, packaged software solutions based on the more than 4,000 commer-cially available Pick applications are

VMork's mainstass VMark must remain extremely aggre-sive in its efforts to induce Pick develor ers to port their products to uniVerse. Ac-tually, many uniVerse sites indicate that ort' may be the wrong word in migra ing Pick applications to universe. Bather than recounting horror stories of multi-ple-month or even multiple-year porting periods, many user sites talk of overnight and weekend changeovers.

As Pick sites weigh alternati current Pick environments, Pick/Unix tions are being considered along ith relational database management sys-ms or object-oriented databases. In der to keep their current customs

ere houses with Pick applications ould support uniVerse. The port to uniVerse is a "win-wi ation for both software houses and rir customers. For the software house



uniVerse-based products are easily moved from one Unix system to another and they are compatible with a wide range of systems. This compatibility is also an advantage for buyers who may move applications from system to system

as hardware platforms change in addition to being an application delivery platform, intrivene is also an application design and development platform. This bodes well for unifvene, as the IDC survey finds that just under half of the surveyed situs develop their own annitica-

CASE STUDY: A.M. MILLER

tion coffmans int

When Bruce Bachman came to A.M. Miller and Associates, Inc., a credit and collections firm, just over a year ago, it was obvious to him that the current Pick software running on a proprietary platform was inadequate and running out of capacity. The situation was so had that the firm was on the verge of turning

away business.

A.M. Miller had been using a Pick Environment for over seven years. According to Bachman, the firm wrote is own accounting and tracking software and was determined to protect that investment. As soon as the decision was made

y to migrate to a new hardware platform, er A.M. Miller chose Unix because it was

A a Pack user, the firm needed 2 Pack, compatible ordware system that ran on a top of Unix, After an evaluation of different Pick emulators, Bachman selected what he considered to be the best of the Unix, Pick environments. VMark's uni-Verse was implemented in conjunction with Strategic Afternatives, inc., a Detroit-based VMark distributor. It was implemented on a new DECS/weep 500 numeroed on a new DECS/weep 5500 numeroed on a new 5500 numeroed on a n

ning târus.

"We had an overnight conversion, states Bachman. Before that happened, however, he and his staff wieely did a dry run to detect problems. Problems were found. They consisted of differences in syntax between their old Pick system and uniVerse. Once the differences in the syntax were detected, his staff reprogrammed source code and the problems were resolved. What became the overnight conversion could then be done.

"We didn't lose a day of business," Bachman declares.

At last count, A.M. Miller is supporting 205 concurrent users on its unt/verse/DEC System. A.M. Miller's business bours run from 7:00 a.m. to 11:00 p.m., with peak

demand coming in the late afternoon. In spite of the heavy loads placed on it, the uniVerse/DECsystem remains stable. Bachman's staff of nine includes

Bachman's staff of nine includes three programmers who are responsible for new development and minnenance. Bachman says that, despite beliefs that experienced Pick/um/verse programmers are hard to find, he has not had a problem finding them.

Bachenist's approach to universe and Unix has been a fairly traditional play on the strengths of both components. He uses universe as a platform for both supplication development and delivery. Unix is employed for connectivity and system management. Bachman sisys that A.M. Miller also recently linked an Ethérnet with six PGs to so DEOsystems.

CASE STUDY: OCEAN COUNTY

Ocean County Uniony is in an envious position. It is able in erv on one vendor, Dynix, Inc., to provide software that, when written on top of universe, permits ease of use for over 200 users. Dynix is solely focused on turnikey applications for libraries. Unsign this unalverse/Dynix solution, the library is not forced to develop costly internal expertises.

SUPPORT FOR CRITICAL

uniVerse has many of the capabilities sites surveyed by IDC rate as either critical or bighly destrable. Survey respondents say the three leading requirements for application development environments are a query language (63 percent), connectivity to other databases (57 percent) and distributed databases (44 percent).

uniVerse meets that first requirement with RETRIEVE. However, while uniVerse does offer database connectivity via uVnet, it is currently only across different uni-Verse platforms.

IDC believes that some corporate



mainframes, be they small-scale systems supporting 12 users or large-scale systems supporting over 200 users, may come to act as database servers in addition to performing their other duties. This change combined with the increasing amounts of data on remote systems will drive the demand for database connectivity through at least the mid-90s. VMatk understands that this

connectivity will require it to offer a sandardized Structured Query Language (SQL), as well as give the universe-based system the ability to participate as a member of a heterogeneous nework. To this end VMark is folhowing the lead of the SQL Access Group, which was formed to address compliance with the group's standards, as they become available.

A major strength of uniVerse is in a sublily to promote the development and delivery of vertical applications in an effective and timely maoner: This has been the case since the inception of uniVerse and its removable.

of uniVerse, and its strength in this area has recently been enhanced by the implementation of user-oriented features such as the Motif-style graphical user interface capability for PC look and feel, transaction logging and recovery for data integrity, and distributed database capability for today's ever-broadening topologies These features serve to contemporize what uniVerse (and before that, Pick) solution providers have done successfully for a long time. These people bring to the user the ability to tailor their software to operate consistently with business requirements rather than the reverse. Most of VMork's 150 VARs have either a vertical or functional (such as systems integration) specialty. As uniVerse continues to move into open systems and embraces these standards, this customer-oriented expertise will be focused squarely, on the open sys-

One of the com...on beliefs regarding Pick-like systems is that it is difficult to find developes that are familiar with the environment. As a native Unix application, uniVense has skirted this issue because developers work with Unix, not Pick, if and when they need to access the 11,

uniform includes a standard query language and optional distributed databases canabilities.

operating system.

VMark proposes using Computer-Aided Software Engineering (CASE) tools to generate applications. However, if this is the plan, Whark must be able to provide methodologies that are accepted across a wide variety of platforms, be they databases or operating systems.

of for other plat-

e expected to be a forms this year.

ss the IDC believes that uniVerse is posi-

soned to play a meaningular tole in the ever-expanding Units market. Users that are looking for bursley applications are well advised to consider a uniferser-based application. Considering the fact that some Pick-based programs that cân run on uniferser have been evolving for over 15 years, it would be hard to find such mature and functional applications elsewhere.

cations elsewhere.
Despite its advantages, however, universe sell faces some challenges. Want must persuade VARs, IS software developers and potential users that universe has saying power and will continue to ever a company and produced to the continue to ever a continue to every and the continue to every a continue to every and the continue to every a continue to every a continue to every and the continue to every and will be every and the continue to every and the con

environment.

VMark must employ three strategies. First, it must continue to successfully cultivate evelopers of the more than 4,000

the developers of the more than 4,000 Pick applications. These people should be encouraged to keep porting to uniVerse, and to actively update their software by implementing the latest technology that Unix has to offer. This will keep the company's lifeline of mature solutions evolving and flowing.

ang and flowing.

Secondly, in order to cultivate new solutions, VMark must realize that not the
whole world will speak uniVene. As it
would not be practical to support all of
the various dialects of SQL at this time,
VMark is correct in taking direction from
the SQL Access Group.

Finally, VMark should align with one or more major third-party CASE vendors. This will bring the prestige of these vendors into the equation, and produce faster and easier transitions for first-time uniVerse de-

Lilrarrigua Wald Ray True TO THE WAR

Texas Instruments wants your UNIX systems business...for life.

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ssis, CPU boards, on-board memory and power supply for as long as the original end user owns the system. This long-term commitment to you is unmatched in the

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stem V-compatible computers, with idels designed for two to 500+ users on the powerful 1507 with a 68040 processor to multi-processor 1500MP models, you'll find a complete line of

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Most computer companies are making industry standards a big part of their future. But with Hewlett-Packard and version of UNIX, which enables your employees to share information across integrated data networks.

Ultimate, the future for the PICK industry is here today.

Hewlett-Packard is fully committed to designing products around accepted industry standards. The HP9000 Series 800 features HP-UX, HP's Fick is a registered trademark of PEX Systems. LINEX is a registered trademark of ATRE.

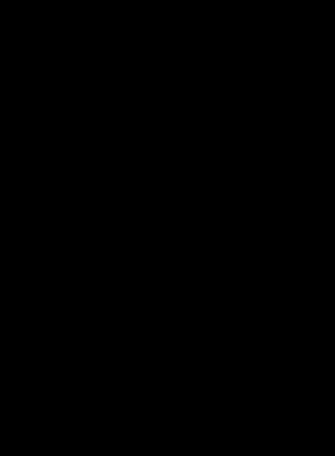
Your PICK-based applications can run with HP-UX, because Ultimate offers you a choice of either Ultimate PLUS or ULT/ix.

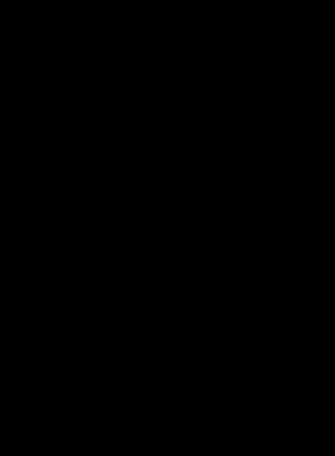
Add to this, Hewlett-Packard's 50year reputation for engineering excellence and reliability and Ultimate's longevity in the PICK

business, and it's easy to see why the Hewlett-Packard/Ultimate team is the choice for PICK.



Ultimate .





Digital Research's DR DOS 6.0 out-DOSes DOS

Technology Analysis — A roundup of expert opinions about new products. Summaries written by freelence writer Susanne Weixel.

R DOS 6.0, the personal computer operating system from Digital Research, Inc., a wholly owned subsidiary of Novell, Inc., beats Microsoft Corp.'s PC-

DOS 5.0 at its own game, reviewent said.

Memory/file management DR DOS makes better use of memory and is able to borrow Video Graphic Array random-access memory to in

crease available memory.

Eese of use: Viewmax, the graphical shell, gives non-Windows user color schemes and directory tree displays. Reviewers reported difficult; installing DR DOS 6.0 on a system

that uses OS/2 1.2's dual boot.
Utilities: DR DOS includes man utilities that MS-DOS users must ge from add-ons. Also, Tankmax, the task switcher, supports up to 20 applications and lets users cut and pass

Windows support: There as compatibility problems between the Superstor utility and Windows, an ome Windows modes preclude D DOS's memory-saving ability. Digital Research's DR DOS 6.0

AT disputed.

AT

Key: Wey good Crime The Brus Reviewer evaluations are encounted from a station. Date to actual encounter in death. Over and embes

Vendor financial ratings Analysis Large term Short Assentiated States S

DOS 6.0.
Windows supports An update issued last fine-tuned the default installation to help use

fine-tomed the default installation to help users optimize their systems for Wandows support. In addition, we now offer a 50-page booklet with optimization and configuration tips.

Norton Desktop: Better Windows than Windows

Symantec's Norton Desktop for Windows

Figures Anguering for or year of year or the property of the property o

Key. Way good Lacond Pair Pour Reviews embassions are encoyed from articles. Refer to actual evolves for details.

Sept. 10 Sept.

Analysts	Long-term stability	Short-term performance
Mary McCaffrey, CJ Lawrence		-

Symantec responds School, Windows product manager

Program/file managements As a Wadow enhancer, it may seem to use a lot of data space, these you consider all the extras you get. In fact, be cause all the utilities that come with The Dealto share threates, they take up at least 20% less disspace than if they were purchased separately. be Norton Deaktop for Windows from Symantec Corp. provides tools that make Microsoft Corp.'s Windows more powerful and easier to

regram/file memogeneem.

he package replaces Windows Proam Manager and File Manager with
integrated operating environment
at offers flexible program launching
of file manipulation. Capabilities in
ade group file handling, batch prosing and the ability to view multiedirect or directory listing
multaneously. The program use
to 40 bytes of disk space beyon
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Millflear Other than a calendar and prome dialer, users will be hard put to find a worthwhale utility not includd. There are graphical versions of forten Backup, Disk Doctor, System information and Batch Builder as well a mi con editor and library, screen aver, file shredder and key finder.

ince is colorful, intuitive and customiable. One minor shortcoming is that seen must manually arrange icons on the Desictop for program hausching. Mindown compensitality if The package provides keystrake and nouse uniformity with Windows, you have Windows, you have Windows, you

NEW PRODUCTS

max Technologies, Inc. has red the prices on its UIathin notebook computers.
Ultrathin systems include an tel Corp. 20-MHz 80386SX processor, weigh 4½ poun stand 1¼ in. high.

With a 60M-byte hard drive, the notebook costs \$2,795. An 80M-byte version costs \$2,995. Commax Technologies Commax Technologies 2031 Concourse Drive San Jose, Calif. 95131

Opus Systems, Inc. has started shipping a 40-MHz upgrade kit

for its Personal Mainframe Scal-able Processor Architecture

The 40-MHz motherboard raises Personal Mainframe per-formance to 29 million instructions per second, the company reported. The kit also includes Sun Microsystems, Inc.'s Solaris

The kit is priced at \$4,195. Opus Systems 329 N. Bernardo

Mountain View, Calif. 94043 (415) 960-4040

Software application packages

Aldus Corp. has announced up-

grades of its Persuasion presen-tation software packages.
Persuasion 2.1 is available for both the Microsoft Corp. Win-dows and Apple Computer, Inc. Macintosh software supports Apple?— Publish and Subscribe feature and Quicktime technology. The Windows software now supports Dynamic Data Exchange and features enhanced performance.

Both versions include the Persuasion Player, a runtime ap-plication for distributing and viewing Persuasion stide shows independent of the actual Per-suasion software. Persuasion 2.1 costs \$495;

ractofinish, an image of software package for Mic Corp.'s Windows environm Photofinish (\$199) scanned Photofinish unned photographs and in. It can export edited in straphics,

ing files.
Zeoft
Suite 100
450 Franklin Road
Marietta, Ga. 30067
(404) 428-0008

Database

Natural Language, Inc. has produced an updated version of its English language-based query-ing tool for relational databases. Natural Language Release 5.0 features a meno-driven instrace for accessing graphics, data analysis and reporting functions. It also incorporates on-line help and improved reporting capabilities.

bilities. The software now supports a mber of Unix workstations as number of Unix workstainen as well as personal computers rau-ning The Santa Cruz Operation, Inc.'s SCO Unix, and Digital Equipment Corp. WA systems. Support for DOS and San Micro-systems, Inc.'s Solaris operating system will be abod 44,500 on low-end desistor platforms. Dose-end desistor platforms. 2910 Sevenath St. Berkeley, Calif. 94710 (510) 841-3500

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ndagen be, Purken Capacita 1986 Hi Carapusa Santon Cap. All lighs Record Visibilità Portus Canação 1984 SI Facilità Cap. Perken Capacità 1985, Nr. 184 40, 51 Filed Cap. All lights Record Engag a produced of Visibilità di Administra, les Monata and HCCCE an equinad reclamate d'Homat Capacities Works in reviewed of Monata Capacities.

NETWORKING

Internetworking product demand booms

BY JOANIE M. WEXLER

Revenue projections for the internetworking market continue to spiral, as firms feverishly add segments to their corporatewide communications networks.

The appeal of users gaining access to applications anywhere

Next step
Once sure made the
commitment to LAVs, the
found they needed to meet
and connect different
entirements

41%



W Chart: Jacob Genoman

on an enterprises de network has caused worldwide router revenue to jump from \$224 milion in 1990 to \$470 million is 1991, according to a recent re port from Needham & Co., : New York investment analysis firm. The firm expects those figures to hit \$1.6 billion in 1994.

The report showed that total internetworking equi ment market reached \$588 in lion in 1990, a 57% incresover 1989. That market include eive than routers. Bridges ac commodate all protocols but of fer less functionality in terms o security and diverse routing They handle LAN-to-LAN communications, while routers move

The internetwork market so comprises gateways, which we necessary for converting sta formatted in one protocol to the format of another. Gateays handle node-to-host, LANhost or LAN-to-LAN commu-

ire of Portune 1,000 firms to peed internal communication and externally exchange business documents as the major imnetus behind internetworking products continued growth.

wever, Barry Gilb r at Computer Intel ruro, an Acton, M

cop, an Acton, Mass. Onsece search firm, warned that intalling equipment is only half e battle for companies expectg a hefty return on their intertworking devices. Often, companies "don't go but mile in behing employe

Often, companies "don't go
e last mile in helping employs gain an understanding of all
ey can do with the informan," he explained. "We tend to
in the linkages but then usuy leave it up to individuals to
ten how to use them."
In a recent report, CI/Info-

p estimated that more than 6 of organizations with locala networks have implementa LAN-to-host gateway (see art) and that 49% of compare installed interconnectivity
vices among them.
The Needham & Co. analysis

networking environment in existence.

However, one user b

However, one user next on highwaith her firm to open sysens said she views multiprotool routers an enomewhat of a hintrance to the Open Systems Inerconnect (OSI) nirvana. "The narrent set of multiprotocol to a consistent communications infrastructure that facilitates the haring of information between my systems," and Laurie Bride, manager of communications technology at Boeing Computer Services, Inc. in Seattle.

peing is running p

rotocols, such as Novell, Inc.'s

"X and Digital Equipment
orp.'s Decret, "on top of an
SI transport as a first step to
et us to a clean end-to-end com-

seid.

tageo Infortuation Service Group in Delran, N.J., said I considered Bride's comments ' mique perception. There a currently not enough well-desc oped OSI products to support that tiend of move."

what existing technologies afford them," particularly in an eraof fiscal belt-tightening, he said.

A recest Datapro survey of nearly 600 network professionals revealed that weader reputation and support rated No. 1 on user lists of internetworking purchase criteria.

Small firms unite through net Semnet provides independent manufacturers with big company access

BY GARY H. ANTHES Carolina, the nation's 355,000 of qualified parts suppliers, h

IIMBIA. S.C. — A por

mest, industry and university porturning has set up a test network linking. South Carolina manufacturing firms and technical experts at state colleges and universities. The partnership hopes to expand the network to other Southeastern states and eventually to the entire U.S., forming a manufacturing information infrastructure that will

markets.

According to Paul Haray, 6rector of the High Performance
Manufacturing Consortium and
senior vice president for re-

arolina, the nation's 355,000 of quantied naid, inclining ways to exchange scheical information with maphiers, oustomers and technical manufactures.

"They're not competitive but they don't know it. The market to the city they're in an that ait," he said.

ven quite large n

the decommunications sysem, litray said. They are truggling to implement the baics of electronic data interhange, and their private, intracompany networks are dominatd by financial applications. As a sensit, they lack the ability to apply tap into the national pool Huray's answer to those oblems, cafled Southeast anniacturing Network (Semt), will bring technology and atomers to manufacturers hale conveying manufacturers' publisties and bids to buyers cound the U.S. The network

round the U.S. The network rill eventually he able to support oice, data and video in both synhronous and saynchronous nodes, Hursy said.

At present, Semmet occupies neer of Suranet, a university-

a part of Suranet, a universal appearance regional netwo spanning a donen Southeaster states at 1.5M bit/sec, soon le 45M bit/sec. Semnet ties to gether the members of the Hig Performance Manufacturis Continued on page

Telecommuting project keeps HP execs in-house

BY ELISABETH HORWITT

Fued with the danger of lozing high select association to a tercey with Communic. Herelett-Peckard Co.* Western region sales center manager, Barry Ross, responded by offering some managers the chance to work at home four days a week. In addition to discouraging valuable personnel from heading on the telecommuning project to result in productivity gains and cost savings in the bundreds of thousands of dollars. the project last month, and six to 10 salespeople will participate in a pilot this year. As much as 50% of the West

As much as 50% of the Western region's telesaless force we oventually participate, and it is done in the control of the contro

Based on an internal study, Re said he expects telecommutito induce salespeople to stay fo or five years in their jobs, co \$80,000 per person for the first year of employment at the division, Ross said. Ross said he expects the program to result in hundreds of

gram to result in hundreds of thousands of dollars in additional sakes per person per year by losering the division's frequency of hiring an inexperienced person to replace a departing senior salesperson.

HP executives who insped off on the

assured by the fact that the Western divisis had in place "very specific me rics" for measuring telesale people's performance, wheth or not they worked in the offior at home, Ross said. Criter include sales performance. Employees whose performance falls below a certain level on lose the right to telecommute of their jobs, he said.

Each telecommuting sales

Sale rage con ti

rith a 386 HP Vectra personal imputer running a sales note rare package from Brock Conrol Systems, Inc. in Atlanta. aleapeople maintain customer ccount profiles on the PC and at including new orders, in ba mode over dial-up lines to an 9000 minicompater, also r ning Brock software, at the goo' at lessales center. Salespeople, who sell the

> e electronic smal, call up test prices and availability oducts and put together quotations for customers, Ross said. Salespeople de most of their work on a local PC.

on a local PC, minimizing the time they have to spend linked center's minicomputer, and for each telecomputes to approximately

quipment for each telecomuter comes to approximately 5,000, including software, a C, two phone lines and a fax odem.

Compuserve brings monthly fee on-line

BY ELLIS BOOKER

COLUMBUS, Ohio — Compu-serve is now allowing subscrib-ers to its on-line information net-work to opt for a flat monthly fee of \$7.95 for about 30 informa-

rings.

The move brings the nation's rgest on-line service in line ith pricing schemes used by at ast two of its competitors: Ge-

nie, run by General Electric In-formation Services; and Prodigy, a joint IBM and Sears, Roebuck and Co. wenture. The two ser-vices have monthly flat rates of \$4.95 (non-prime time), and \$12.95, respectively. The rate does not include access to Com-

editor of "IDP Report," a

udea E-meil tronic mail, one of the top kations of on-line networks, soluded in the new pricing age. Reading all incoming its free (except from Inter-, and users can send the ivalent of 60 three-page mess. Above this monthly limit, per. Above this monthly limit, ers will pay 15 cents for the it 7,500 characters and 5 ats for each additional 2,500

Frank Glaser, an assistant strict attorney in New York so signed up with Compuserve by a month ago, noted that me of the "basic" services are ready free of connect charges, wertheless, be was enthusias-

AT&T, CLI show desktop videophones

AT&T recently introduced a mass-market videophone for use on the public telephone network. The \$1,500 Videophone 2500 sports a 3.3-sq-in. color LCD and shows motion at 10 frame/sec. It will be available in AT&T Phone Center stores and department

duced a vinceprote sys-the Apple Computer, acintosh and Integrated 3 tes Digital Network (ISDN). The Cameo Personal Vistem, Model 2001, is ribed as CLI's first in a fax

grains, Nanas, Nanas in a temperature of clerktop video solutions. The Model 2001 operature at The Model 2001 operature at The Model 2001 operature at the State of the State of the State of the SINN Basic Rate interface line for saids and 64% bittee, for video. CJI and future products will support IBM Personal Computer of the State of the St



Those days are gone. Your data-only multiplexor is costing -you lost savings every day you use it.

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MICAM

The latest development in Enterprise Networking in two words:

Small firms unite through net

Huray said the electronic but-g system will help conure con-mance to military specifica-ns, will reduce both govern-nt and vendor costs and could orten procurement lead time spare parts from months to

base of manufacturing firm shilities. The DOD or a comercial enterprise could use it to erch for qualified bidders or to to gauge the qualifications of meanies submitting bids.

Cable TV fills the bill

NEW PRODUCTS

concentrator priced at 9. It includes autopartition-for isolating network fail-

nessaced the BCX-3000, a multi-please/foncestrator with the same compression capability as the BCX-100/256. It includes Synchronous Data Link Control (SDLC) local polling for in-proved performance in IBM Sys-tems Network Architecture/ SDLC applications. The BCX-3000 costs approx-imately \$11,000. Presticon

bec J3Y 9Z7

Compatible Systems Corp. has created the RISC Router 3000E, a two-port router based on a reduced instruction set computing (RISC) chap. The Ethernet-to-Ethernet

Compatible Syst Suite 102 4730 Walnut St. Boulder, Colo. 80308 (303) 444-9532

Multiaccess Computing Corp. has announced a frame-relay Nubus adapter card.

The MCC-1000F includes a data nervice until; thange leaves data nervice until; thange leaves until; thange leaves the purpose of the control of the contro

Comm Server 1.1 links PCs to microcomputers

The latest version of communi-cations server from Digital Com-munications Associates, Inc. (DCA) and Microsoft Corp. be-gan shipping last week. DCA/Mi-crosoft Communications Serve Version 1.1 works more closely with Microsoft network fea-

The network-to-mainframe software now takes advantage of the remote access capabilities of Microsoft's LAN Manager Ver-sion 2.1. Comm Server will link portable and home computers to

(805) 964-2332

Here's what else you should know about global Enterprise Networking in four numbers: 1246 Visit Booth 1246

Visit Booth 1246 at ComNet '92, Jan. 28–30, Washington, D. C. Convention Center.

ascom Timeplex

Nightmare Scenario #2



THE RUNAWAY CASH SUCKER.

"Why didn't someone tell me this @\$!?& network would cost so much?"

lot of executives go pale when they see just how much their computer networks are really costing them.

"What's with all this new payroll?" they ask. "I thought this thing was going to save us money."

Too late. They're strapped to a runaway cash sucker and heading downhill fast.

he fact is, the real economics of running a computer network are never even mentioned by the people trying to sell you one.

They want you to believe that a network is basically a one-time expense. That growth is inexpensive and effortless. That you'll never have a problem.

Don't buy blind. It will cost you unbelievable amounts of money and grief. You simply Research proves
Banyan more
cost-effective
than Novell, IBM,
DEC and
Microsoft.



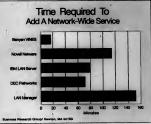
Send for this impartial survey of network cost-efficiency. It's full of hard, actionable data.

have to know what questions to ask before you decide which computer networking system you are going to buy.

Thich brings us to the recently completed research report offered free on this page. It was compiled by the Business Research Group, and shows how Banyan, Novell. IBM, DEC, and Microsoft stack up in cost of operation. We urge you to send for a copy of this report and to read it. It will help you make a better-informed decision.

What BRG did was to interview the day-to-day LAN managers at 180 different organizations about the length of time required to execute II typical network functions. All five network vendors were equally represented. But this is where the equality ended.

Banyan won in all 11 cate-



For sheer cost-effectiveness, Banyan surpasses everyone:

gories. Often by margins that were astounding.

hatever the job, administrators of Banyan VINES networks were always able to do it significantly faster.

And faster translates into smaller staffs and lower cash outlays now and in the future.

Banyan will save you a fortune. It's indisputable.

As the chart above shows you can add a network-wide service to a Banyan VINES network in a fraction of the time needed to perform the same task on other systems. It stands to reason, therefore, that VINES administrators are much more productive. That you'll need fewer of them as you grow. And that your network costs will always be

held to the barest minimum. Banvan's clean sweep was

no fluke. We won across the board because our unique integrated architecture simplifies administration. With Banyan VINES, cost-efficiency is built in from the beginning. And as this competition proves, no other approach works nearly as well.

Computer networks are becoming indispensable to business. So understanding the true cost of networking and all the factors that affect it—is now critical.

The BRG report is a good place to start. This is a real-world report based on the testimony of actual network managers. Compare for yourself the relative performance of the major network vendors.

If you want to check further, remember that more than a million people are now using Banyan VINES in operations ranging from several individuals to the largest global networks.

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anyan is the world leader in simplifying the use and management of networks—and we can show you why.

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CITY STATE ZIP	BANYAN'
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by each of the companies you see here—all members of 88open. By adhering to a set of certified standards, they've made it possible to protect your computer investment well



into the future of Motorola's RISC offerings. That's why 88000 is the foundation for an impressive range of deathy computers, workstations, servess and supercomputers, in addition to more than 300 fully compatible software pedages. So if you want both assured of servely pedages are software pedages, and the software pedages are software pedages, and the software pedages are software pedages. And the software pedages are software pedages are software pedages are software pedages. And the software pedages are software pedages are software pedages are software pedages. And the software pedages are software pedages are software pedages are software pedages. tions in the business.



MOTOROLA

MANAGER'S JOURNAL

EXECUTIVE



Troubled automakers rethink IS

Big Three abandon inflated expectations, aim squeezed funds at EDI, dedicated nets

INDUSTRY CLOSEUP

BY ALICE LAPLANTE



ATM pioneers reaped market share, income

Troubled automakers rethink IS spending

Not only do the Japanese gar vanished factors in the factors their relationship with suppli-also helps their product quality efforts. "The smeate sale," Who knows best how to design a lisplector system — the supplier who will ac-ily build the part or the carmaker who will rely assemble it into a finished product."

To Michael Roberts, international program di-

conveying more data on stan-nered EDI transmissions. For ex-nered EDI transmissions. For ex-maintering the standard of the standard of the sup-mental standard of the sup-mental standard of the sup-mental standard of the sup-

Family dynamics, Japanese-style

terminals.

allows suppliers to look into its inventory databases in real time using Ford-supplied terminals. The goal is to give suppliers the ability and authority to determine what to ship to meet Ford's manufacturing schedule. For U.S. metonalcers, the next great frontier in IS-facilitations. There are multiple proprietary graphics and computer-aided de-aign and manufacturing (CAD/ CAM) systems used within each manufacturer's operations, mak-ing it difficult for a supplier to op-erate efficiently with a myriad of plants and natomakers.

ORD IS NOW pilot-testing a system that allows suppliers to look into its inventory databases in real time using Ford-supplied

Dealer talk

get credit approval in ministes.

• Speeding distribution. Fechnology will eventually shrink factory-to-dealer time from six weeks to two.

• Prespiring causeons orders. Eventually, just-in-time and EDI links will enable clients to get the exact car they want within a week. This would not down on the costs of care because car makers would not produce stock that doesn't sell.

from the University of Mic gan's Department of Transpi tation, in pre-CAD/CAM day the 1955 Chevrolet had a proed cooperation with suppliers is ed cooperation with suppliers is the product design cycle.

While there are philosophical reasons for a fack of design syn-ergy in the U.S. (see story be-low), the technical obstacles boil down to a dearth of standards:

among manufacturers and sup-pliers and how they can be im-proved through technology as well as better managerial and or-

co. in Denver, the world's larg-est supplier of automotive belts and hoses. "The new joint ven-ture on CAD/CAM should help enormously."

CALENDAR

FEB. 9-15

MARCH 8



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EXECUTIVE REPORT

CUSTOMER SERVICE

IS at your service

Increasingly, the corporate quest for happy customers is enlisting technology's aid



US West's Stephen Architeta kopes distributed mainframe access will reduce time ex typically spend on hold while repa hunt down information (see story page 76)

BY DEREK SLATER

es, sir! Lickety-split, right away, in your size first thing in the morning, so charge, and thank you for calling! Customer ser-vice is hot these days, and information technology is fast emerging as the biggest

An america of all.

An america grow tighter and product for cycles shorten, many U.S. businesses to cycles shorten, many U.S. businesses with the cycles shorten, many U.S. businesses with to be play the stand out. And information systems, with its potential for gathering and analyzing data on controverse mode and statubles, in anticula reviews and antomative solutions; "E-Percylood ja endorser who should be a standard be reviewed and anticulation of the control of th

comm.
Indeed, recest polls suggest widespread interest and increasing specified on contener-crimeted and forestance processor.

See the second processor contener-crimeted specification in the contener-crimeted by CCC Indee, Inc., Grand that four of the top its zeros for the chemology investment for 1992 are related for contener service. Order processing ranked first, with contener law of the contener service. Order processing ranked first, with contener service. Order processing ranked first, with contener service (4989), product delivery (499) and pressible contener service (499). Essentifives in inset of 16 vertical markets pointed lated service technologies as their up investments of the contener service.

old's new products writer.

uin gud in to improve customer service, associa-cificials into improve customer service, associa-cificials in the properties files, the section in the protection of contries, face, the lance Manattern Bank N, BMW of North Ameri-han Manattern Bank N, BMW of North Ameri-ne of other firms that have recently installed or payabed customer-oriented systems, interest is confined to the University of Condition con-verses on the use of information technology that the contraction of the contraction of the con-traction of the University of the Condition con-verses on the use of information technology that the contraction of the ballog in the second season of the contraction of the contraction of the contraction of the ballog in the con-traction of the contraction of the con-traction of the con-traction of the contraction of the con-traction of the c



KEY POINTS

QUOTABLE:

"Service is the No. 1 factor for differentia-tion."

GE answers call to evolve 10-year-old help line

BY ALAN RADDING

e, a blocked drain or perhaps a pro-inside the muchine.

In most cases, the problem can be iden-ed in minutes and even corrected by caller. If the fix re-ires a trained service huckas, the caller is itched directly to the Service Center, where can achedule an ap-iatement if preferres.

tment if he desires.

differing one-call
conser service, the GE
wer Center in Louis. Ky. — part of the \$6
cn, 25,000-worker GE
kinnee Division —
instates the frustrating
conser service runmid, says William
rs, manager of con-

considere occess
thind the effectiveness of the GE Aneffect Cester is a massive text database
entaining more than 1 million problemsolution responses. Any of these can be
lied up in less than two seconds — and
line less, says Aneette Mattingly, inforstream of the second of the second of the less, and
problem of the second of the less, and
and the second of the less of the less, and
and the second of the less of the l

and merchandising information. An ing algorithm is used to call up data

indexing algorithms is used to call up data using key-word searches.

GE opened the Answer Center 10 years ago. Since then, four full—time programmers have been updating the probrem-resolution text database daily. It's a good example of a service pioneer that has kept evolving.

Today, the center employs 225 people, It handled 3.5 million customer service calls in 1991, up 500,000 from 1990.

to the control of the

calls a day.

Service representatives handle a
range of sppliance brands, including GE,
Rotpoint, RCA Corp. and Monogram.
They are backed by a team of 12 product
aspect operations who devote responsibilities who devote responsibilities who devote responsibilities.

In needed, these specialists also provide more detailed information directly to callers, typically do-it-yourselfers trying to fix products themselves.

vice... puts a human face on the corpora-tion and builds customer loyalty." But he says pinpointing exactly what constitutes says pinpointing exactly what constitutes customer autifaction is a bit tricky. Key considerations include meeting buyer expectations, such as pointing cus-tomers to the nearest free warrantsy ser-vice, providing tips on low to best use a product or away the caller the price of a service visit by guiding him through the requir process.

Waers says.

However, GE says it does not use the system to identify and track individual callers because most customers prefer aname unless we have their permission, and we don't use any automatic number identification," Waers says.

tion continues.

The Answer Center is slowly migrating from its old Bull to an Amdahl Corpmainframe environment, Matthighy says. The Bull system continues to handle the bulk of the applications, which run under GE's Common Software Environment. The system is two-thirds completed; administration and training modules are already in use.

A quality

A quality-control application was put on hold when the division was restruc-

"We are now using a team approach with high employee involvement. [The monitoring application] was a system for when we had a lot of supervisory people."

when we had a lot of supervisory people. Where caphian we were a supervisor for future use are workstadion, artificial intelligence, imaging and graphical user interfaces. Mayor changes will be approximated with castion, however. With 3.5 million callers a supervisor, which is a supervisor of the control of the control

Customer service turns IS into biggest servant of all

mattancy.

Now, Cunningham says, it means saing buyers in many areas. Customers, for example, may want to see from a wide variety of products options. Some might like to order tronically, pay by charge card or corate account and have goods delivered

bridge, Mass.-based CSC Index. "Information technology makes that process securioss and fast." Imaging, EDI, voice response and others are seen as hot technologies for speeding and streamlining the flow of information from the business to the customer and back (see atory page 80).

Chance to gain odge
However, an even bigger reason, according to IS managers and consultants, is that
customer service is among the small—
and shrinking—number of areas in which
technology can be used to gain competi-

tive advantage.

By some estimates, gaining a new customer can cost as much as five times more than retaining an existing one. So a freight company that can quickly pinpoint the location of a missing package, for instance, will find its efforts well worth it. Typical of the desire to quickly and ac-

"We needed to become more efficient because as our products have become more reliable, we receive fewer calls for service," says Tom Francis, system ad-ministrator at Copperstate. "Our service department also needs to dispatch our field technicians and track service calls

perly." To that end, the firm recently i Another factor driving interest in cur

nuotner ractor driving interest in cus-omer service technology, Cunningham, ottes, is that product life cycles are de-reasing in nearly every market. For IS, hat means building systems that can uickly identify and supply whatever in-

ormation the customer wants.

Whirtpool Corp. did just that. The ap-itance maker's service centers in Knox-ille, Tenn., and Benton Harbor, Mich., lategrate imaging, artificial intelligence and other technology to provide speedy

Domino's: How was your pizza, ma'am?

BY MEL MANDELL

Any way you slice it, the pizza business is very competitive. That a why Donizo's Pizza — long dominant in home delivery but not generally considered a leader in customer satisfaction — is counting on better service to spice up its efforts in the

better nervice to spice up its efforts ongoing pieza war. By year's end, the Ann Arbor, Mich-based firm will have finished instilling a reventured, periodic instilling a reventured, project. Based on networked personal computers and exvers linked to an IBM Enterprise System/9000 mainframe, the ner system will speed up handling of the Object Corig, Domin'on amanger of marketing and operations systems. Instead of the paper question.

lecting and operations systems.

Instead of the paper questionnaires
now used in most of the chain's 5,200 cetlets, complaints will be keyed into PCs
and handled electronically, Greig says. At
present, customer gripes are collected via
mail-in questionnaires, which are then
scanned into databases.

Pie wers ruge on The Mystery Customer Survey system represents an important weapon in Densi-no's battles against the hungry pack of competitors taking huge bites out of the locative pizza home delivery businessi. In just six years, Donnio's has watched in 60% share of the home old-rery market met to 50%, according to Gerry Darnell, editor-publisher of what Todge, a trade impagame. Pazz list, Inc.,



Co., Firm Hot is simply "much better managed" than Domino's. What's more, Little Caesar Enter-prises, the third-largest pings-pario chain, is now starting home didverties. Add the tens of thousands of independers immun-and-poir jumerius that also deliver, and you've got a crowded table. So Dominot, principal that has deliver, and you've got a crowded table. So Dominot, we will be a considered table. So Dominot, we will be a considered table.

ket share.

In mid-1989, Peggy Bestervelt, director of the survey at Domino's headguarters, decided it was time to consider up-

grading the survey. Her vision was to climinate paper forms and instead have poliers call customers at random via toll-free lines, then enter results using pro-

performing stores to go undetected for weeks.

Using Fondase from Fex Soft-ware, Inc. in Perrysburg, Ohio, Com-monwealth Data Corp. in nearby Pymouth, Mich, created initial on-line query screens for about \$30,000. Now in pilet phase, the project is using a 286-based PC to query customers in a 150-store re-gion in Florida.

ion in Florion.

Domino's switched contractors
then the lead programmer went to
rork at BDO Seidman in Troy, Mich.
Indrew Caldwell, systems programter at BDO, tasts be is now trying to

ner al BIO, says be is now trying to make the program frendiers to users by with fewer heystrokes. Eventually, foreig says, pollers servicing in two shifts on 25 PCs connected by a Novel, Inc. network will be able tool 12,000 customers a mostl. The network will be hardward to the company's BIM ES/9000 maintranse, which will maintain the extremite distabase and will servicing use a light-end Company Computer Corp. PCs as a service and computer

Automotic letters
The surveys use a 1-to-10 scale to assess speed of delivery, pixes appearance, done-ness, crust thickness, temperature, user and stitude of order takers and delivery people. There is also room for other positive and negative comments.



also act information by date. Beatervelt says autonovade implementation should be completed by the end of the year. What the overall cost is not clear at this point, the says she is certain that will be lower than present costs.

Although Demoin's has 460 outlets in the complete of the

utell in a New York-based writer who covers

operations at the Old Tappan, N.J.need publisher. "You almost have to
B
we a smorgashord of technologies beuse different people will prefer differt ways of ordering."
Portland, Ore-based shipper Consoltied Freightways, Inc. invested \$1.0 milne of m imaging system to cut customFor

n for an imaging system to cur custom-document request processing from ys to minutes. In May 1991, the compa-cut the ribbon for a central imaging fa-ity with an eight-processor Tandem inputers, Inc. VLX system with 14 op-

Of when, Inc. VLX system with 14 sp-distinguishmen, and inclination of the con-ditinguishmen. According to Martin Luky, general, anguer of the imaging unit, the system is "by at least half" the 500,000 man-nager of the imaging unit from types to the part of the control of the con-tinguishmen of the control of the con-trol of the control of the control of the product, Luky any, the shipper will also try to boost the bottom ince by giving other companies in the industry access to

customer service system, be prepare tackle a couple of big problems IS ma

Robert Brydges, assistant vice president

of IS.

Customers calling with a problem are told to expect a call back within 15 minutes, and systems used for customer service are expected to have 99,5% available; if; The company is evaluating sealing are service technologies to continue to amouthly connect to customers who used their shipping services. See the definition of the brooffs and particular told the contrast of the contrast and the contrast of the contrast and th

elephant, Simon & Schuster uses surveys as well as one-on-one feedback from coa-toners at trade above to keep track of cli-ents'-changing needs, Bates says, For-ample, customers at an industry show were polled about their willingness to us-voice-emposace equipment. The plan rot-ceeded only when an overwhelming 50% of the respondents said yes.

Why is cc: Mail the lea











o::Mail can send information across all of these computing platforms to reach everyone in your organization.



Over a million satisfied customers have already given cc.Mail a first-class rating. For example, Windows sers love its easy-to-use interface, Smarthous' and application integration. And FO World Saw 'Sending a cc:Mail message is easier than addressing an envelope and licking a sismpi** 981

Complet III or Ball, Ser. a whiley considerable of balls beningsons Composition All rights recovered Companied to States proceed and complete and Republican in a bandward of Long Technologies Companies in Many

ding e-mail package?



It's easy to see why cc: Mail" from Lotus" is the world's leading electronic mail package. Because it delivers more than messages. It handles just about any electronic mail need you might have. No matter how large or small your workgroup is. With it you can send text, files, graph-

ics and faxes across all major local area networks such as Noveli, LAN

Manager and Banyan." Without needing new hardware. Better still, it allows you to send ele tronic mail effortlessly back and forth from different platforms—such as DOS, Windows 3.0, OS'2" and Macintosh—across the same LAN. Plus, with oc:Mail you can access

public mail and even mainframe ma quickly and easily.

Our newly released cc:Mail for Windows takes full advan-

tage of Windows 3.0. Support of Dynamic Data Exchange lets you easily send other mail-enabled Windows files from within those applications: For example, you can send a report you've written with Ami Pro" for Windows across the country while the application is still on your desk top.

Plus, oc: Mail is the first package of its kind to take advange of a new, fully scalable messaging architecture. This means co:Mail will grow along with your business.
Whether you're adding

six new users, 6,000 or 60,000, cc:Mail is a proven solution. As PC World has said It's clearly a best buy PC World, 9/91°

For a free demo disk of the cc:Mail Macintosh, Windows or DOS Platform Pack of your choice, call us today at 1-800-448-2500.





can send a file from any mail-enable such as 1-2-3" for Windows and other



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cc:Mail from Lotus

US West dials systems help to keep customer calls coming

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The Kelly Girl' People - The First and The Best 01991 Kelly Services, Inc

Symmetrix. When We Increased The Capacity-While Retaining Our Small Footprint And **Industry Leading** Performance-We Got AVery Gracious Response From Our Competitors.

For more than a year, EMCs Symmetrix Integrated Cached Disk Array (ICDA") has lead the industry in virtually every significant disk category: first in



performance; first in capacity per square foot; first in environmentals and cost of ownership; and first in data availability. While our competitors have and beyond, that's more than double our original configuration. And it ensures that the Symmetrix Series will offer continued improvements in economy, data availability...and flat-out speed.

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Symmetrix now may be configured with up to 32 volumes of 5.25" disk drives, each with a device level buffer for faster transfers and 100% write caching. To eliminate rotational delays, Symmetrix incorporates up to 3 GB of cache—more than 40 times the cache of conventional cached DASD. This, combined with

They're Behind

talked about developing a solution like Symmetrix, EMC has delivered it. And now we are introducing the expanded capacity and functionality of the Symmetrix Series.

Expanded Capacity In The Same

5.5 Square Foot Package.

The Symmetrix 48XX Series is a powerful new storage platform that provides up to 40 GB of disk capacity, 3 GB of eache, disk mirroring, hardware redundancy, and a full-system battery back-up, all in a 5.5 sq. ft. package. The platform allows for field upgrades, which over time can bring it to 60 GB EMCs proprietary caching algorithms, have produced performance gains well in excess of 40% for Symmetrix users, whether they run a 4381 or multiple ES 9000 systems.



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Since its inception the Symmetrix Series has offered a breadth of features that increase data availability substantially. These include full system battery



Which is precisely why Symmetrix is the only mainframe disk subsystem that comes with a full two-year warranty.



Symmetrix Beats The Others Coming,

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Symmetrix is easy to install, faster in operation and runs at a lower cost of ownership than any disk solution available. More important, Symmetrix isn't, just a promise or an idea on a

Us All The Way.

back-up, proactive on-board diagnostics, Auto-Call service to EMC's Remote Support Center, and a

disk mirroring option within the subsystem itself. All this without the need for host intervention. And now, the 48XX Series brings you thead capability of Dynamic Sparing, to further ensure that your data is available when you need it. Every aspect of Symmetrix was designed and built to ensure that the high reliability you purchase will start that was. drawing board. It's here today, delivering proven performance, savings, reliability-and now, a new

series that's second to none. Many customers are already enjoying the benefits of the Symmetrix Series. If you would like references or product literature, please call EMC at 1-800-222-EMC2 ext. L183C (in MA call 508-435-1000, in Canada call 1-800-543-4782).



Meet or beat buyer hopes, expert says

Deloitte & Touche executive says technology must focus more on customers and their needs

John Shaw, vice chairman of service sec-tor strategy at Deloitte & Touche and au-thor of The Service Pocus (Dow-Jones Ir-win, 1990), discussed the role of information systems in customer service

A Service touches the customer even more than the product does — re-prediess of what the product is. Even if you have a marginal industrial roduct or even a service product that's infinish to differentiate, like a bank count, have you deliver the product, now no help the customer and deal with ingree is it the place where the business is dif-ter is the place where the business is dif-

So "service business" is the single at important application of technology

A liysu call the 800 mmber for Pederal A. Express, you don't have to sit at a footh-line piece hitting a bunch of lacent, which is nifect would be doing the rook for them. You little them you Zill how you zill have you will be a footh of the pederal by how who you are. They'we taken on the repossibility of nowing who you are no opposed to you entring some code into a Touch-line force. That is an important destriction. It and good feelings on the part of the customer because they know somebody out seen known them.

Q What can companies do to better use information technology to improve customer service?

A There are three necessary success factors. First, IS groups need to be



the low-cost producer of "low-cost tra

actions": telecommunications, data stor age and that sort of thing. There's very lit tie value created, so there's no sense spending a lot of money on it. You've got to do these things very efficiently. Second is having good applications sys-ems, like the accounts payable system, the psyroll system and the logistics sys-

tem. It has to work, and it has to work well, but it's the so-called "necessary but not sufficient basis of compection." Sue have to have it, or you've not had basiess.

It was to have it, or you've not had basiess.

It was the like service delivery is actually connected to the customer. Turough some involve strategy, the value is delivered to the customer on the customer's terms. Now create whee for the customers by meeting or exceeding their expectations of the contrast to them.

A They look at what they want to do, what their own capabilities are and how they want to do it, as opposed to standing in the shoes of their customer and looking in.

The notion is to figure out what's really

The notion is to figure out what's re portant to you and me as the cust

TECHNOLOGY ROUNDAYP

EDI, imaging exploding

BY PAULA JACOBS

Fierce competition for dwindling consum er spending has boosted interest in com-puter products and technologies designe-

to improve customer service. Digital radio networks, satomated call distributors and expert systems in particular are drawing high interest, according to Jeff Kaplan, director of Ledgeway for betaquest, which recently published a ser-

vices trends study.

Also popular are electronic data inter-change (EDI), electronic imaging, inven-tory management and handheid and lap-top-computers, be adds.

Firms that want to improve customer service through technology can spend as ittle as \$1,000 for inventory manage-ment software or upwards of \$50,000 for for a sognisticated expert system, for ex-

the commencency of the commencen

uipment maintenance and installation. At Sears Business Center, a tracking stem tracks the flow of computer parts mem traces the flow of computer parts i products received by the company's computer service areas across the mirry. The software tracks and con-is field engineering disease-bine.

ack service activities.
Camon U.S.A., Inc., which provide chnical support for the company's print of division, uses inventory management of tware from Brock Control Systems for customer service: Canon has in mented the Brock Activity Manage

tem, a series of software modules ur such areas as database rketing, telemarketing, ide sales account man-

ent and customer ce and support.

non his customized and egrated the software its AST Research, Inc. 6 Unix system. The chage is priced at ap-minately \$2,800 per

pictogue at 22,000 per femine to the control of the

lemote service nited until 1990 to large private net-erk users, digital radio communications whice much more widespread. Ad-

or Ardis, is now commercially available in more than 8,000 locations nationwide. According to a 1991 study by Datapro Re-search Group in Delran, N.J., Ardis is available in 97% of the nation's metropoli-tan areas. The 40,000 or so Ardis users onnel from NCR Corp., Pitney Bowes, sc. and Otis Elevator, Inc. Ardis uses portable across the U.S. include field serv

inc. and Usis Elevator, inc.
Ardis uses portable, handheld termisals to access a network and can be used
both inside and outside a building. Field
technicians can use the portable Ardis
terminah at customer sites or in their vebicles to obtain dispatch, diagnostic and
service call information. The portable terminal can also be used as a stand-alone raimputers and data terminals to an A

network.

Based on a technology developed joint
by by IBM and Motorola, Inc., Ardis pre
vides nationwide, radio-based transmision service using point-te
point, terminal-to-host an
host-to-terminal dat

transmission. It is avail-able from Ardin Co. in Lin-colnshire, III. Ardis prices range from \$100 to \$150

To improve customer service during or der entry and shipping. EUN has become a near necessity in health care, pharmaceu-

Lavrs & Geck, a division of pharmaceu-ticals manufacturer American Cyanamid Co., relies oo EDI for its purchase orders and invoices to improve efficiency with trading partners, says Larry Smenyak, di-rector of customer service and distributor

relations.

The medical supply distributor re-placed its existing order system with EUMs a year ago and plans to explore EUI see for rebutes and possibly for additional transaction sets. The company receives about 72% of customer purchase orders

through EDL With EDI, "we can servi

through EDI. With EDI, "we can service more customers directly, achieve at least a 50% reduction in keypouching and roduce head coast." Senenyah saya. According to Smenyah, the actual coast (822,000 for transaction and mange of solvane from EDI Solutions, Inc.) is not always as the incommitment the EDI sale force invests. "But the end result was worth it, as our customers are very pleased," be saye.

Expert systems, artificial intelligence futurating customer service is autobratically and a service in autobratical intelligence in the property continues. Expert-based or knowledge-based organisms employing artificial intelligence in temperature supply knowledge and expertise to problems — in some cases, replicit plasmas service some cases, replicit plasmas service cases of the Federal Pleasure Based in Boston, says the belask in some of to the Paper Loren speet system from Papersteam, see to help some service speech some some some service speech some some service speech some service speech some some service speech some some service speech some some service speech service speech service speech some service speech service

McCabe my.

He says the bank was also able to decrease its service staff from 49 to 30
hanks in part to the efficiency of the soltmare. Other specific cost benefits are dikult to measure became customer derice was the primary goal of the system
mojetometration, he odds.

Solvice suggested tools can also be
considered with superit systems, incorpcrating strificial intelligence to help field

a new engineer can access an expert cust-base using a laptop computer. After identifying the product requiring service, a list of symptoms appears. The engineer makes a selection, and the sys-tem constructs hypotheses about the causes of the malfunction and recommend the best remedy. •

MAY WE

HELP YOU?

IN DEPTH

Is IBM making the grade?

Big Blue is touting its five major initiatives. A noted IBM watcher gives the company high marks for concept but not follow-through

BY HOWARD FOSDICK





· Deciding whether IBM has delivered for IS

· A mixed report card

· IS chiefs speak their place

Centinued from logge 81 with 5 mangers saying they are structed in its good of circle and CASS information of its in good of circle and CASS information of the circle with a fragmented CASS market place, with no clare winder leaders or standards to follow. At the time of Bargonitor's associated the circle and the circle

dops. While a few products work directly the the Repository, vendors don't need link their products directly to the Resistory to fit into IBM's CASE strategy, any vendors well just write batch interces for their CASE products or simply smalate their CASE models into Cross stem Product's (CSP) External Source stem Product's (CSP) External Source

porware.

As a final insult, IBM's own System-view and Information Warehouse prod-ucts fail to use the Repository's informa-tion model and instead opt for using their own. This sabotages the Repository's role as a unifying force within IS.

About the only good news concerning

Through AD/Cycle, IBM stabilized a pre-viously chaotic CASE market. From no presence at all in the CASE market; hose IBM schiewed instant credibility simply by selecting three vendors as its AD/Cy-cle "business partners": the Repository is that products from business partners Knowledgeware, Inc., Bachman Information Systems and Intersoly, Inc., now work with it. This is a first step toward meeting IS' need for the integration of CASE models.

GRADE: Fell. The Repository is too

IBM's report card

d help would be recommen

A major influence on IS and software vendors. A nice philosophy, don't you think? IBM wins by proxy — the busine partners were already the marke leaders before AD/Cycle.

What's in a name? Is this anyth beyond a collection of existing

ing viable competitors to IBM) makes it possible for IS to have a more orderly evo-lution into new technologies. In terms of specific AD/Cycle prod-

ucts, they run the garout from insignificant cant to successful. On the insignificant side, Workstation Interactive Test Tool, Software Analysis Test Tool and Deve-

AD/Cycle duced in 1989, is IBM's CASE d on a coop-

frost-end CASE tools for design and analysis and mainframes providing central control and back-end services. Ironically, IBM has been much more successful in this CASE strategy than in producing the Repository that underlies it.

on IS. Other IBM offerings are question marks, Because of their relative short life-spans in the commercial world, the following products introduced in September 1991 must still grove themselves. The AD/Cycle Workstation Platform/2:

tion changes.

OS/2, for its part, is surviving. It remains the desitop operating system for AD/Cycle. The fact that numerous CASP including those DICYGE. The fact that manerous CASE dos work under GO₂, including those on IBM's ADICYGE business partners, used to the control of the cont

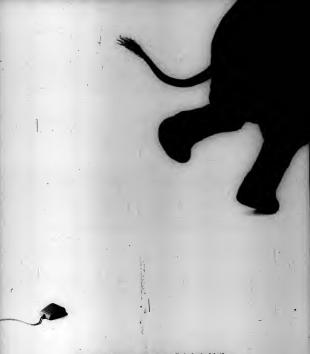
cioned workstation version of this product in its new OS/2 CSP. CSP's use is grow-ing: A recent survey of some 335 DB2 us-ers showed it as the leading applications

smerator. AD/Cycle has progressed during its we-pear history. BM's business part-ers have released GS2 sersions of their tools, and the user interfaces have been gargarded to SA4 compliance. aggreed to SA4 compliance. gargarded to SA4 compliance special properties of the temperature of the lang. BBM did some quick thinking with AD/Cycle. It achieved instant credibility through business partner aliances. It has also addi performances from products such as GS/2, DB2 and GSP. Continued on page 84 Continued on page 84

IS executives aren't thrilled with IBM's performance

atives. Open Software Poundation crit, Uniz, C. SAA just doesn't play to that very well. It may show consis-my in IBM's powher loss, but even so, a still more of a promise than some-ing that's been delivered. We've been involved in AD/Cycle. a IBM has missed the best there as il in terms of the target platform — a too mainframe-based.

IBM has excelled in architecture ideas, but it is missing pieces that are badly needed in terms of Repository and AD/ Cycle. However, I can't say that users are entirely blameless. Most of the com-panies clamoring for these initiatives aren't positioned to use them if they



New technology can seem a little intimidating.

Investments in information technology have reached 40% of U.S. capital spending. Yet national productivity has not improved since 1973. So anxiety over new spending is

is that hardware alone doesn't pay off. Which is why Andersen Consulting offers something even more powerful. is one we can apply for any enter-A way for your organization to seam- prise. Without fear.

justifiable, even healthy. The evidence lessly link technology to your strategies, operations and human resources. This balanced, realistic approach

Where we go from here.

Continued from page 8

Systemview

be short — little has happened to Systemview beyend announcements. Systemview promises to manage heterogeneous, enterprisewide infor-

It manages host, business administration, network, storage and database resources. Systemyriev's end-user dimension ensures SAA user interfaces for these IS management products; the application dimension defines guidelines for the product integration; while the data dimension tandardized systems manag torage.

nent data storage.

The goal is improved product integraion and increased automation for IS sysems management software.

IBM seected Fatamum Iccinocopy Candle Corp., Bachman Information Systems, Goal Systems International, Inc. and the Information Retrieval Cos. for its Systemview business partners. A question remains: While these vendors offer a great group of products, does that make them as exchitecture.

them an architecture?

So far, all that has happened is that these companies have upgraded their products' user interfaces to SAA compliance. Meanwhile, because several vendors rejected offers to become Systematics naturens, it assessments that IBM is

having difficulty in orchestrating its

temview uses its own repository ratus than Repository Manager/MVS. BM's own Systemview products is clude Netview, IBM Operations Plannin and Control, Problem Management Po ductivity Services and Failure Analys and Support Technology Service, amor

and Control, Problem Management Productivity Services and Falame Analysiand Sapport Technology Service, amost others. While individual products ma turn out to be adequate, the product set a a whole is ill-defined and confusing. Systemview offers no design coherency which is not the way to attract users.

ing difficulty in orchestrating its Sysview strategy. For their part, indusanalysts expressed dismay that Sysview uses its own repository rather repository Manager/MVS. formation farehouse

Lake the Repose tory, the Information Ware house identifies : critical need with in IS. It aids in retrieval of information, regard less of platform or location. But un

the Information Warehouse form) works today.

Introduced last September, the Infortion Warehouse facilitates decisionsport systems. The Information Warenee distinguishes between "operationdatabases," which support critical plications and reflect the state of the insess in real time, and "informational tabases," which contain data workers

For its part, IBM will provide the longmisted remote unit of work capability to a four relational SAA database managenet systems by March 1992. The retote unit of work feature transparently state SQL transactions to the proper losion within a database network. IBM apports data propagation to the Informaon Warehouse by Data Extract Facility. De Data Propagatior and a new feature siled RRDF Log Apply, which updates at shadow copy? of selected DB2 tables at shadow copy? of selected DB2 tables.

note site.

Inally, IBM has long had many decisupport products it now promotes as
a for the Information Warehouse.

Warehouse amouncement in the Enter prijes Data Access[50]. family of product from Information Builders, Inc. The in formation Builders products permit data terrestreaments and the product terrestreament of the control of the terrestreament of the control of the forest platforms and using a dozen com mon communications protocols. SQL in the universal data excited language the programment engley through an applica programment engley through an applica programment engley through an applica more lixensively of underlying communications protocols. Extender interface interface protocols. Extender interface interface protocols to the Information than ceinting products to the Information and the control of the control of the protocols. Extender interface the ceinting products to the Information and the ceinting the ceinting the Information and the ceinting the ceinting t

company recognises that the setup, ad ministration and coordination of dat copying between the operational and in formational databases challenges th typical IS shop.

Therefore, it is working on a business information directory to handle the maping between the databases as well as a rocess manager to automate the copy rocesses. While IS expertise, personne and administration will still be necessary. BM is allocating its resources to address the right orotherns.

GRADE: Incomplete but promiting. The Information Warehouse on cept shows that IBM understands better geneity. It looks good so far, with IBI delivering value and addressing IS' da access problem through its partnersh with Information Builders.

The final judgment on the bulk of IBM's major initiatives is still out. Because of this uncertainty, even IBM dichards will have to make sure they are balancing what their IS shops need now with what IBM era deliver.

Besides, should there be a need in your shop that IBM has not yet addressed with one of its strategies, all you have to do it will need seaten her.

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RELETING THE MODIFIES NECESSARY ROUNDAMES IN RELETING THEM SOLUTIONS WE CHEATED THE SYSTEMS AND STRANGE TO HELP YOU GO BEYOND TOTAL STRANGE AND RESISTENCE AND STRANGE AND STRANGE AND RESISTENCE OF STRANGE STRANGE AND STRAN

GEOGRAPHIC AND RUSINESS RORDERS AS WELL WE OFFER INTERNATIONALLY ENABLED FINANCIAL, HUMAN RESOURCES, DISTRIBUTION ENABLOSMENTAL, AND PROCESS MANAGE-

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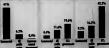
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Bush trip yields high-tech silver lining





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1992 Computerworld Editorial Calendar (January-June)

Insue Date	Ad Closin Color* B	¢s /W	Editorial Feature	Show Distribution	Ad Readership Insue	Response Care Decks
Jan. 6	Dec. 20 Dec	c. 27	Executive Report: The Information Systems Contribution to Quality		1	-
Jan. 13	Dec. 27 Jan.	3	Product Spollight: Windows Applications			Maile: Jan. 15 Space Close: Dec. 6 Mart Close: Dec. 9
Jan. 20	jan. 3 jan.	. 10	Executive Report: Contoner Service Industry Closeup: Automotive Industry			
jan. 27	3an. 10 Jan.	. 17	Product Spotlight/Buyers' Scorecard: LAN Management	Communication Networks Jan. 28-30 Washington, D.C. Windows OS/2 Jan. 28-30, San Jose, CA	Harvey Study	
Feb. 3	Jan. 17 Jan	. 24	Executive Report: Using IS for Fast Track Product Development	1	1.	
Feb. 10	Jan. 24 Jan	. 31	Product Spotlight: E-Mail	Networld Feb. 11-13, Boston	Starch Study	Maile Feb. 12 Space Close: Jan. 3 Mart Close: Jan. 6
Feb. 17	Jan. 31 Fel	b.7	Executive Report: Beyond Sales Force Automation		1	
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Mar. 2 .	Feb. 14 Feb	b. 21	Executive Report: Information Systems at the Point of Cantomer Contact	1111		
Mar. 9	Feb. 21 Feb	b. 26	Product Spotlight/Buyer's Scorecard: Client/Server Application Development		Starch Study	Maile: Mar. 11 Space Close: Jan. 31 Mar! Close: Feb. 3
Mar. 16	Feb. 28 Ma	ar. 6	Integration Strategies: Pulling blacs into the Enterprise Network Industry Closesup: Aerospace			
Mar. 23	Mar. 6 Ma	ar. 13	Product Spoffight/Buyers' Scorecard: RISC Desitop Machines and Servers	DB Expo Mar. 23-25 San Francisco	Starch Study	
Mar. 30	Mar. 13 Ma	ar. 20	Executive Report: Outnourcing: Interior Solution or Long Term Strategy?			
Apr. 6	Mar. 20 Ma	ar. 27	Product Spotlight/Buyers' Scorecard: PC Software-Fresh Application Categories and New Twists on Old Once	Comdex Spring '92 and Windows World Apr. 69, Chicago		0
Apr. 13	Mar. 27 Ap	r. 3	Executive Report: To Be Associated		1	Maile: Apr. 15 Space Close: Apr. 1 Mar'l Close: Apr. 6
Apr. 20	Apr. 3 Ap	pr. 10	Product Spotlight/Buyer's Scorecard: Printers Best Suited for a LAN Environment			
Apr. 27	Apr. 10 Ap	pr. 17	Executive Report: To Be Amounced		Starch Study	
May 4	Apr. 17 Apr	pr. 24	Product Spotlight/Buyer's Scorecard: Midrange Systems That Run Enterprises			
May 11	Apr. 24 M	lay 1	Integration Strategies: Creating an "Open" Company Industry Closeup: Personal Care Industry		Starch Stady	Mails: May 13 Space Close: Apr. Mari Close: Apr.
May 18	May 1 M	lay 8	Product Spotlight/Buyers' Scorecard: Routers	May 18-22 Washington, D.C.		
May 25	May 8 M	lay 15	Executive Report: To Be Assounced	-		
June 1	May 15 M	lay 22	Product Spoffight: What the Well-Equipped Help Deak is Using			
June 8	May 22 M	lay 29	Product Spotlight/Bayer's Scorecard: SUSP II			Malle: June 10 Space Close: May Mat'l Close: May
June 15	May 29 31	me 5	Special Edition: Annual Pression 100 Magazine (Ad Close: May 1) Essentive Report: To Be Assounced			
June 22	June 5 Ju	une 12	SPECIAL SUPPLEMENT: Computerworld's 25th Anniversury Product Specifight/Buyear's Convecards: Purshile Computing (Improv. norbelooks, pero-based and wireless technologies)	PC Expo June 23-25 New York City AIIM June 22-25 Anaheim	Starch Study	:
June 29	June 12 Ju	une 19	Executive Report: To Be Associated	45		

Q4: Surprises in scant supply

Observers say it's time to look past quarterly numbers for bellwethers

BY NELL MARGOLIS

it's a disaster. It's a dilemma. Depending on where you stand what you choose to see, ann-lysts noted earlier this mosth, the computer industry's fourth quarter of 1991 can be safely characterised as almost anything

amount of 1972 can or district control money of the money

on lines.

One result, several analysts indi, is that quarterly results—measure already under fire by ritics who see U.S. industry as andicapped by short-term inching in a worldwide market-bee where long-term strategy les — may be at an all-time glud irrelevance.

Analysts pointed to a host of raditional industry hellwether runs as good candidates for

traditional instatiry behaveler correctioning in the fourth color-for quantum Digital Equipment Copy, Berkul Hearth Copy, Hear

'who knows?"

LARGE SYSTEMS: "The
dustry's bleeding," Payne said,
ad few voices from Wall Street

disagreed.

The state of the st

from the \$30 million range to near \$1 billion. However, and byts also widely expect IBM-byts also widely expect IBM to post operating profits in the \$1.5 billion range for the quarter closed Dec. 31.

DEC, too — still smil expensive business restructurings and product line transitions — took a wiskley predicted fourth-quarter beating.

ter beating.
Unisys Corp.'s draconian cost-cutting is likely to deliver the firm back into the black after the firm back into the black after two years of loss quarters; how-ever, Payne said, the profit— anticipated around \$24 million— will be earned on revenue down an estimated 15% year over year. A relatively flat quar-ter is expected from HP, which is

ter is expected from HP, which is anticipated to report marginal sales and profit increases next month and could be the high end's high point, several analy

said.

PCS AND WORKSTATIONS: Bruised by breakneck
competition and drained by the
unexpectedly long reconsion, the
once-triumphant personal comparter market will shine in the
fourth quarter, but only in comparison with the battered high
end, analysts aidd.

Better-thou-expected tables of

end, analysts and.

Better-tham-expected sales of
Compaq Computer Corp.'s competitively priced new boxes
caused several analysts to raise
their estimates on the beleaguered market leader, but Wall Street still foresees a steep yearover-year fourth-quarter decline in both revenue and profit.
Apple Computer, Inc. should RRIFF

in both revenue and profit.

In the control of the

report profit up 23% to \$16 mil-ion on revene increased 8% to \$128 million. SOFTWARE: Anticipated hardware sales have not kicked in is time to boost hardware ven-dors' fourth-quarter results, Lu-patkin noted. Neverthéens, they were a major factor behind a rel-atively upbest quarter in the software sector.

atively upbest quarter in the notiverse sector. McGrosoft Corp. and Symmatoc Corp. both are expected to reap the bottom-line benefits of sector of the corp. The bottom-line benefits of sector of the corp. The bottom sector of the corp. The corp. The corp.

BRIEFS

Merger minus

➤ Demark's ICL Data A/S, a merger effort between Nokia Data and RC International (RCI), will lay off approximately 150 of its 650 employees, with SSO of its 650 employees, with the art falling particularly on those who came to the firm from RCI. according to a recent amonacement in the Danish basiness press. After two profits have years, RCI experienced heavy lossels in 1991, largely became of a 50% failed in exports and a substrated drop in the company's believe instruction of the company's believe instruction dropped to \$2.5 million — \$4.2 million below plan.

Union dues

> Union a Halian computer
manufacture Ing. C. Oliveril
SpA are pointed to pertition the
Italian spervanent for sill a line
with company difficials earlier
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in morth, and they requested
a meeting with government mysilicon. Oliverth lass moil it will
have to cut its domestic work
silicon. Oliverth lass moil it will
have to cut its domestic work
core on all silver to 1,000 shed
in 1991.

Still on the line

Skill on the Time

Despite recent market liberalization, state-council Spatial

control of the Skill of the S

Pruit of their labor

Pruit of their labor

Decognitive efforts between littaubishi Electric
Corp. is japan and Germanybased Dasinaler-Bena AG are
beginning to bear full. Earlier
thin modil, the firms amounce a prelimitary green control indicate
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to green and the property of the property
AEG AG, will manufacture integrated circuits for Mitsubish
to use in televisions. AEG in expected to sign a formal secondsource agreement later this
source agreement later this

BRIEFS rs have won 41% of the \$16

Where the chips fall ...

NATIONAL.

where the cangus and the system of the part of the par

.. and where they no longer do

LSI Logic Corp. earlier this month became the first founding member to withdra-from Austin, Texas-based se-conductor research consorti-Sematech. Disagreements over Sematech's agenda and the faihure of that agenda to dovetail with LSI's own strate gies reportedly drove the Milp tas, Cahil-based firm to sever

Bush trip yields silver lining CONTINUED FROM PAGE 85

dors have won 41% of the \$16 billion Ispanese commercial market for mainframes but only 6.2% of the \$3 billion public mainframe market, made up of national and local government, schools and hospitals. The national government buy only 0.4% of its mainframes from foreign appliers, according to the CSP study.

can support, according to the CSFP study to the control of the con

A trade official at a large U.S. computer firm who asked not to be named added, "We're getting \$4 out of \$10 in the toughest arket in the world. This is not a atter of selling right-hand live cars. We've proven we can

compete on an equal basis if giv-en a chance." To give the U.S. that chance, Japan said it will do the following: • Ensure that foreign and domestic suppliers get equal access to prebid information.

• Formulate technical specifica-

HE AGREE-MENT IS inter ed to wipe out MENT IS intendthe persistent effects of a "buy Japanese" government policy.

ner and allow equal actory manner and allow e cess by foreign compa specification-setting Reduce the use of sole-source

contracts.

• Award contracts on the basis of performance as well as price and improve the "transparency" of contract-award criteria. a Promote multivendor open

systems environments.

• Establish an impartial bid pro-

test system.

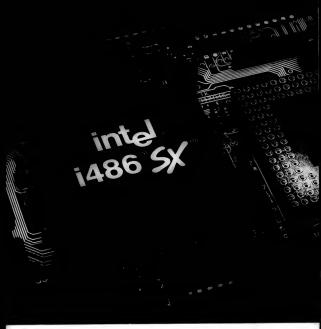
The agreement is to apply to all purchases exceeding approximately \$140,000 in value. The effective date for hardware and software products will be April., and for services suchaing nothware development, Oct. 1.

The terms of the agreement are intended to wipe out the persistent effects of a "bay Japonese" government policy implement in the nearly 100fts and exerct of the search 100fts are

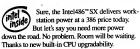
are manufactured to the control of t

Something's waiting inside the 486 SX computer.

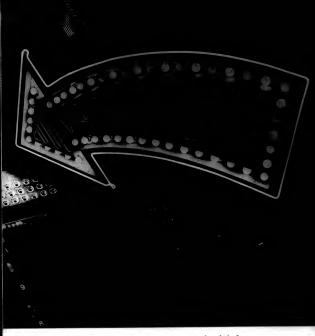




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Presidential politics create iobs, but work is seasonal

some increase of late in

es can expect to put in a lot of time and bring home hefty thecks in 1992. Many of the same IS professionals can

in previous election years, which tend to fall during even-numbered years, demand for skilled programmers, analysts and computer operators with ex-perience in this nicho market has been known to double, only to fall back in off years.

tomized campaign materials such as letters and canvassing lists for such clients as former California Gov. Jerry Brown and the state Democratic parties to Maryland, West Virginia and

New Hampshire.
"This is why we tell program-mers from the very start that we can offer them a lot of moncan other them a lot of money this year but not a lot of permanence," be says. IS hiring follows a similar pattern at American Data Manage-

ness in those years than in non-election years, according to com-pany President Doug Winslow.

This feast or famine employ-ment such for everyone — nor are the hours. In the six weeks preceding the November elec-tion, Tobe says, it is not unusual for IS workers at his firm to put in

The workers best stated for these seasonal posts are those with technical talent, independent ways and a passion for politics, employers say. "These jobs are on the fringe of politics and therefore have the same degree of drams and timing," Tobe says. "The people we tend to attract

litical interests." While the majority of jobs are

of short duration, it is possible to build an IS career in the political a. At least three politics-ori Computer Services in New rk, Voter Contact Services in molulu and Santa Clara, Calif., in Houston — hire IS

staffers on a perma-nent basis, even though the com

money during a few months of the year," says Mike Hannaban, vice year, says buse rannanam, vice president of marketing at 'Oster Contact Services. "The reason is that for a programmer to become useful to us, it takes about a year to train them."

creasingly becoming available at companies that develop and self

companies that develop and sets activare directly to campaigns. At Aristotle Industries, Inc. in Washington, D.C., for example, company President John Phillips asys he expects to fill between six and 12 new positions for permanent, full-time personal com-

ware programs that track cam-paign contributions and constitu-ent inquiries, Aristotle Indus-tries compiles and publishes compact disc/read-only memorybased lists of registered voters and works as a contractor, in-

and works as a contractor, in-stalling systems and training users at various state legislatures. In both 1990 and 1991, the compacts to do so again this year, articipating 1992 revenue of 53 million, according to Phillips. Such growth, Phillips says, shows that "declinements in pretty much a year-round business now. People need E bu gat elected as well as stay elected,"

Political savvy wanted
The service firms that work directly for political campaigns divide along party lines. Employees
are not required to declare politithey are required to sign both noncompetitive and confidential

interviewed, virtually all said they prefer to hire candidates with political experience, wheth-er it be as volunteers or paid campaign workers or as employ-ees of another service bureau

ees of another service bureau
that does political work.

"Bocause the whole election
business takes place in a very
tight time schedule, there is a
certain anount of political survy
one needs to have," says Margo
Marzbon, president of Election
Computer Services, which is now
work through November.

For example, Marzbon says, a
For example, Marzbon says, a

es who live in the same house not out are members of different political parties. "The person we here to do this has to understand the numbers and why they are

hand in Ridley Park, Pa.

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How to figure out what others expect of you

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You're on your way, right? Well, maybe not. There is a whole constel tion of needs and expectations that can impact an IS career —

sorting and prioritising all of these expectations can be diffi-cult, especially because not all of those professionals you inter-cat with will be very good at ar-ticulating their expectations or connecting them to your job. There are, however, a num-ber of information sources you can tap and actions you can take that will help you to better un-derstand what is expected of you and how you can excel: It The commany's missions.

The company's mission atement. Mission statement ovide a broad view of what e organization is trying to ac-

what you do and can do to meet

the firm's objectives. Also, by finding out what

obs impact yours.
As an IS professional, you As an Disprofessional, you need to familiarite yourself with each person for whom you work, from immediate supervi-sors to upper management, to understand the hurdles your su-periors face. With this new per-spective, you will be able to ap-preciate each individual's role

INFORMIX

the grapevine is true. all communication with yees at all levels will pre-

needs.

For example, if you're workings with an end user, you may
get a feel for his frustration
and problems, which could actor
ally mirror feelings of users in
general. This clone contact can
often provide an early warning,
helping you surficipate changes
to the or gamination.

The company will eventually
have to respond to the pressures
if a policy doesn't work. Whil-

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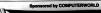
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Reporting to the Division V.P. of Data General's RTP, North Carolina enging lab, the Director of DBMS Software Development will lead our effort indevelop high performing database products on Data General's AVION put li

nat once.

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Responsibilities also include lending the technical efforts to provide high performing implementations of industry-standard detailance products and passabasking the halsoon with database evendors to eniuser successful product and technology partnerships. The condidate will be responsible for an angual banding piet development projects that result in differential and banding piet development projects that result in other small.

aing and leading Joint development projects that result in differentiated products leading to improved sales with enhanced performance and leaves.

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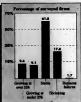
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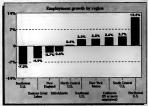
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Computerworld/Corptech Career Index

DIVIDING THE WEST -- Factory automation employment flourishes in the Northwest while it wilts in the Southwest









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MARKETPLACE

Antitheft devices for PCs take bite into crime but not budgets

BY ALAN RADDING

f a thief is really determined toget his hands or your personal computer there may not be anything that you can do to stop him with enough time, cables can be cut, adhesives unstate and bois pried off in a variety of ways Newestheless, most thieves gree for to word that him of effort I they can, which is why product to deter easy lifting of desiton and portable computers are read portable computers are read portable computers are read portable computers are read to the computers ar

many corporations.
Union Carbide Corp. in Danbury, Com., knows only too well what happens when PCs are left improtected. Before implementing the simple anchoring device called the Kabbit, the company lost as much as \$100,000 worth of PCs, says A. E. Jividen, man-

ager of security operations.

However, since the product's implementation five years ago, Ji viden reports that not a single piece of equipment has walker

Most of the leading products use similiar tactics for deterrence. "Basically, they bolt or cable the computer to the deak and secure it with a lock," explains Tim Garon, new products edited at the Franningham, Mass.-based newsletter, "Information Securi-

ty Product News."

Anchoring systems run cables
that are locked to immovable ob-

the outer case of a PC. Product for IBM and IBM-compatible m chines usually use acrews or as heaves. Apple Computer, Inc. Macintoshes and some of the ne notebook computers have re movable panels in the back oute case, called security slots, int which a corre with a cable evel-

which a screw with a cable eyele is inserted.

The Kablit security system from Secure-It, Inc. in East

Longmentow,
Mass., is just one
of a number of
antitheft devices
available for PCs
and Macintoshes.
Other popular devices include the
following: the An-

Ventura, Califbased Anchor Pad International, Inc. secures computer with a locking pad adhesive to the desk; the 2000 from Fremont, Calif-bs Qualtee Data Products, Inc. b the locking pad to the desk;

sington Microwave Ltd. is a c bling system for the Macintosh. A product offering a differe twist is the PC Screamer for Vantage Point Technologies San Marcos, Calif. Like a c alarm, a battery-powered alarm.

when the computer is moved.

Note Look by Corporate Ma agement Group, Inc., based Austin, Texas, is a locking clan that prevents a laptop from being opened. The champ attaches to the outside of the case and we quires a key. Without it, the lap top must be pried open, ultimate by destroying the keyboard. As optional cable is available to kee the laptop from actually being

stolen.
Antitheft devices are generally inexpensive, ranging from \$3

shorter cable from Qualtec to almost \$200 for Qualtec's HD 2000 or the Anchor Pad, which is the only device that comes with a suar-

comes with a guar antee to reimburs the buyer for up t \$5,000 for a stole ster secured by it. st, however, is not a big is

Cost, however, is not a big i sue with users. "You don't bar to lose too many \$5,000 compt ers before you figure you can be a lot of security devices," says viden, who says be buys 56 Kablit systems at a time. Purchasers are particular

Purchasers are particular concerned with issues such a whether a device will damage or permanently after the deak or computer, inhabit necessar movement of a computer or der technicians trying to get in the machine to perform service.

Although every vendor strives to address ease of use concerns of antitheft devices, there are demess of difference. For example,

to move a computer secured be cabling, the user only needs to unlock the cable, while moving a Anchor Pad requires more effor. That product most be installe by manufacturer-trained personel, and the pad can only be removed through the application of the pad.

Weighing the trade-off in many cases, a buyer must weigh the trade-off between conweigher and degree of deter-

Vendors concede there is a fail-safe method to protect a PC and none make absolute claim that their products will preve theft entirely. The goal is make removal hard enough discourage a third who wants i

Even Anchor Pad, which guarantees its performance, is not

torch or crowbar.

"We" gotten quite a few r
imbursement checks from the
over the years," says Willia
D Lundquist, senior field oper
tions manager and director of a
curity at the Northbrook, II
based Alistate Personal Proper

Allistate Insurance Co.
Union Carbide, on the other hand, liked the ease of installation of a cabling system, which is about a 15-minute effort. The company chose Kablit because

company cross a south because each system comes with a lost with a unique master cylinds makeup.

While standard pin locks or he nicked easily, higher end by

dismantle because of a special in ternal design. Lock 'em up!

Preventing the thaft of a computer in only part of the lattle. Organization also want to prevent papie from physically gaining access to the data or the isside of the computer. In turn, wendows have to specified with a variety of

represent a sampling of realistic locking devices: • Hoy Concepts, Inc... Survivy/2, a key-ontrolled her that plage into the serial port to activate code, which blocks softwere access to and from

 Konnington Microwave: Passproof, a floppy disk drive lock for the Macintosh.

o Corporate Management Group: Lamitch, a floppy disk drive lock for the IBM Personal System/2 and Caseclosed, a

connections.

Secure-lt: DLK-270, a series of floppy disk drive locks for the PS/2.

meter Unitock tocks to CPU chassis and cover PCs and Macistoshes drefer to prevent some from opening the s chines to take inter

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AT Model 339	\$750	\$1,000	\$700
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PS/2 Model 60	\$900	\$1,500	\$900
PS/2 Model 80	\$2,250	\$2,600	\$2,150
PS/2 Model 90	\$4,300	\$4,600	\$4,100
Common Portable II	2600	8500	\$375
Portable 206	9808	\$1,000	\$800
Pertable 356	\$1,800	\$1,900	\$1,500
ELT 286	\$1,300	\$1,300	\$1,000
LTE 204	\$1,000	\$1,300	\$600
Declary 204E	8450	\$1,000	\$800
Dookgro 384/20	\$2,000	\$2,300	\$1,900
Apple Macintonh Plus	\$700	\$750	\$650
SE	\$975	\$1,050	\$950
IIX	\$3,000	\$3,250	\$2,800
nci	\$3,700	\$3,800	\$3,700
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Watch IBM and Microsoft make history at the Windows & OS/2 Conference.

Microsoft Windows/NT Strategy Briefing



al Maritz, VP, Advanced Operating Systems crosoft Corp.

Microsoft is moving forward with one graphical user interface and one API: Windows. As new technologies facilitate new functions and features, Microsoft plans to extend Windows in compatible fashion to support these new capabilities, while carrying forward the familiar Windows interface and thousands of Windows applications. Paul Maritz will reveal many of the significant enhancements planned for Windows in 1992, including true 32-bit implementations of Windows and a 32-bit API. Maritz will reveal Microsoft's strategy behind extensions supporting pen-based and multimedia applications, and will detail the services and features that will enable Windows to act as a server platform.

IBM OS/2 Strategy Briefing 12:00-1:15pm,



Thursday, January 30

Lee Relewig, Assistant General Manager, Programming Personal Systems, IBM Corp. and *Jee Cagliolini, General Manager, Marketing & Business Development, Personal Systems, IBM Corp.

IBM's integrating platform for DOS, Windows, and OS/2 applications won't ship until March of 1992. But Lee Reiswig (known to his staff as 'Blue Ninia') will lead a guided tour through IBM's most controversial systems product, including the Workplace Shell,

OS/2's new object-based user interface. Joe Guglielmi will brief you on IBM strategic directions. Come see the 'new' IBM. O&A afterwards if time permits.

Recovered by: Sam Whitmore, Editor-in-Chief, PC Week Carole Petten, Editor & Publisher, ACKnowledge, The Window Letter





Philippe Kal ident and CEO.



830 - 930 am

J. Paul Grayson CEO, Micrografx Corporation



1+1=3

Information surge is the most powerful trigger of innovation and change in human history. How does it operate and how will it structure life in the 21st century?

The Practical Reality diately following and incorporating Mr. Burke's remarks

Tim Bajarin will moderate a panel discussing the impact of multimedia computing on today's information and technology. The panel will be comprised of leading users and industry experts who are implementing existing technologies. Also, the panel will explain how multimedia computing will be brought to the mainstream of society as technology evolves.

Designing software that's easy to use, versatile, and powerful is just one part of the challenge for this decade. Corporate platforms are beginning to require reusable structures and data interoperability. At the same time, Windows developers are demanding a new breed of tools with which to create applications easily and seamlessly. At this briefing, Borland International's President, resident jazz buff, and programmer extraordinaire Philippe Kahn, will brief you on his company's gic technology direction - object-orientation. Kahn will also detail soon-to-be released Borland products. Moreover, in light of Borland's recent acquisition of dBase mogul Ashton-Tate, Kahn will share his personal insights on evaluating database standards and choosing operating system platforms.

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The software market is becoming increasingly top heavy. The top ten developers account for over 70% of total software up un overappers account for over Jrus of total software sales. How can small, medium, and large software companies compate against Microsoft, Bortand, and Lotus? The rules of the game have changed. To savive our have got to specific, to create a niche and hold on to it tenaciously. What strategies can you employ to win in the 90s? Can anybody beat Microsoft? And it so, how?

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UPGRADED FROM HOLD TO OUTFERFORM. Quantum Corp. (Shearnon). Like Snapate, Quantum Soudh Benefit from the short supplylingh demand dynamic litting the disk drive market right now. Additionally, Apple Computer, Inc., Quantum's largest customer, is uppring its orders for the landware now. Strong new product offering will contribute to inleie and profits in calendar 1992. The company also has no debt.

DOWNGRADED FROM BUY TO NEUTRAL-Cadence Design Systems, Inc. (Alex. Brown & Son, Inc.). The energy with Wald Logic Systems, Inc. is the most critical investment variable driving colence's abuse valuation. This year's earnings are at risk of erosion because of the dealt though the longue term benefits of the merger are signifi-cant, for now, Codence stock in about as high as it is glosgiu to p.

1992's TOP PICKS

arcuments and accommensation of empirical findings in the best tools into source this empirical—and fill the best tools into source the empirical and fill the best tools into source of work up as factoring measure, along a first the first the empirical and the emp

Bytex Corp. is a big supplier of electronic matrix witches, which provide fault-tolerant connections extunes witch-area networking equipment and corporate hosts by automatically changing a con-numications path in the event of a front-end pro-cessor failure.

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

lage quarterly losses posted by BM and D ignment Corp. sent shares of the two big-iron m ing. At press time, BM had gained 5% points for it to close midday Friday at 96%, while DEC can sta to 53%.

Sun Microsystems, Inc. skipped shead 4½ points to 33 fter rival Hewlett-Packard Co. signed a \$400 million re-eller deal with Prime Computer, Inc. last week. HP ad-ranced 2½ to 62%.

Computerworld Friday Stock Ticker



TODAY TO THE PARTY OF THE PARTY	Acute March	他是我们是在这个时间,也是不要是这种的,我们是是一个人的人们是是一个人的人们的,我们们们的一个人们的一个人们的一个人们的一个人们的一个人们的一个人们的一个人们的一	14年22年4年2日1日 12日 12日 12日 12日 12日 12日 12日 12日 12日	200 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -
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I486: A new deal for desktops

er decline in price in o

fit by having pass the 386.

mpany expects 386SX ship-ents, slated at 2.9 million for 192, to outsell the expected 2.5 ion units shipped for the

mwhile, companies less to hanging 10 on the ng edge find themselves ming the 386 platform with ad interest, particularly in the 386 price

a nose already using the 486 are doing so for specific power seeds, such as computer-aided being and manufacture—ther interes

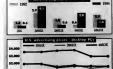
on a widespread basis this year.
"We're standardized on the
386, just like everybody else,"
said Glenn Sandusky, chief information officer at Miller Mason &

owns a couple of 50-MHz 486s, he does not expect to make the 486 a standard in

heaper 486s high-ight the natural de-line of the 286 as a

keep units shipped this year at around 3.2 million, according to figures from Workgroup Tech-nologies, Inc. in Hampton, N.H.

"Prices are coming down, not by with first-tier PC vendors with the clones as well. What Natural selection ut, for 1992, price cuts are pu



Make room for son of 486 P5 chip expected to arrive by late summer

or 'Look now, he Intel's 446 febbe on, the FS, will he the market like this immere.

Source token to laid this negree; to see the Course of the one has been as the country of the country

scalar architecture. MICHAEL PITZGERALD

There's life in the old 286 chip yet

BY CAROL HILDEBRAND

Although Intel Corp. 80286sed platforms have long been ossed off corporate purchasing its and analysts' long-range issts and analysts' long-range market forecasts, small basi-nesses and laptop sales will keep the venerable chip out of the dustbin for another year or so.

In fact, despite Intel's autumn 1989 "no 286" campaign — which the compa ny now insists was aimed at explaining product differences the 286 — 286 per-

Data Corp. (IDC), a Framing-ham, Mass.-based research comham, Mass.-based research com-pany, although units shipped an-nually are falling at a rate of 50% or more, 286 systems sold more heavily in 1990 than did 386SX-based boxes, and 1991 saw bal-anced sales of the 286 and the

Dennis Zartar, said his comp

views the 286 as almost of the loop. Although the comp has not stopped production said, it is being de-emphasi "It's hard to find 286s eve

to play a factor in new deal sales to the Fortune 1,000 si early 1991, analysts said, it

International Ltd. withdrew its 266 specific from the nantifrom the 266 specific spe

inager of computer services at ighes Aircraft Co. "The 386s

Prime set to resell HP workstations

BY KIM S. NASH

NATICK, Mass. - Prime Con

ion deal to resett reweter and ard Co. Unix workstations. Prime users asid they gener-ally approved and that they had more confidence in the troubled vendor's financial position as a result of the new relationship.

result of the new relationship.

"Instead of trying to reinvent
the wheel, Prime will sell an existing good wheel. They're better off," said Larry Pratt, former
president of the Mid-Atlantic
Prime Users Group, which is
headquartered in St. Louis.

Exciting users.

headquartered in St. Losis. Existing users, particularly those on high-end Prime SO Se-rice boxes. "were wondering what would happen to them next, and now they know," said Harvey Allison, an analyst at Alex. Brown & Sons, Ipc. The 39-byear contract calls for Prime and its Computervi-sion substituty to resell HF? Precision Architecture (PA) re-duced instructions set computing

nformation development envi-onment to HP 9000 Series 800

roument to HP 9000 Series 800 series 700 move Computer-sided design software to HP Apolio Series 700 workstations. With the Information port slated to skip next month, users of proprietary PrimeOS have a clear Unix migration path, according to Neil McMullan, promised and Prime's Computer Systems University Prime's Computer Systems (Inc.) Prime's Computer Syste

However, some users are not biting — at least not now. Pratt said the company will stretch its existing Prime Model 2755 for

rur machines.
However, when the time comes, an HP server "is definitely in the cards," he said.
McMullan emphasized that Prime "will continue to support the 50 Series for as long as anyone wants it."

NEWS SHORTS

Apple cops kudos, earnings boost lyque Computer, fac. reported better than expected ourning or 1992's fincil fart quarter. Profits stopped \$166 million, 19 (10% compared with \$150.5 million for the same quarter last error. Strong sales of its Powerchop portable computer spart-oly helped drive revenue up 11% from \$1.66 billion in 1991's mit quarter to \$1.56 billion. Apple also results farts in personal computer sure statistication, socreding to a J. D. Power and Al-tocation survey of 4.000 tiles workfaller.

ISDN deployment clarified
Linigator, NJ-hand Belcore has released a \$103 report deliging the virous telephone companied deployment glasses fatagrants Services Digital Network (SDN) service. The dos unsect complies regional company projections for the are codes and desphase exchanges they glass to equip with SDI access lines sharing the next three years. An estimated SR in line antiture with the continue of the

mdahl 6390 delivery set

Amount G-SPU General value of a Amount G-SPU gas and a Mandal Cerp, said it will deliver a high-capacity version of Amount G-SPU gas and a Mandal G-SPU gas and

Transarc's DCE tool kit to ship

Transacr Cr., savelled a Distributed Computing Eavi Transacr Corp., savelled a Distributed Computing Eavi ment (DCE) developer's bit last week that will ship in Me for San Microsystems, Inc. and IBM RISC System/8000 I workstations. The bit includes core components for early a cutton development in the OSF's DCE, an enabling techno for development distributed computing applications to indi

intergraph updates Clipper for webstate and program for updates at Clipper for webstate in grocene said to deliver there to us times the performance said to deliver there to us times the performance of the current line. The Series 2400 delateds and Serie decision excitations and servers reportedly offer. 3 marks of performance and will be available in March, range from \$18,500 to succe than \$100,000, with process starting 415,500.

IBM and DEC drenched in red ink

CONTINUES or constraints, printer. The important their great them to the terminate of the continues of the continues of the continues of the continues and large based Asia would take to decisions, and I applied that. I for glate thorse 1991 and the continues of the continues of

Sympathy for vendors Both IBM and DEC users, many of whom are themselves whip-sewed between a recession that won't end and competition that won't stop, voiced fellow-feeling for vendors caught in the same

bind.

Analysts took particular confect from the fact that both firms owe their hattered bottom lines partly to loage quarterly charges taken in connection with measive corporate reorganizations and product-line turnarounds currently under way — in IBM's case, a whopping 3.4 billion.

"Whatever happens with the economy, IBM's 1992 numbers are bound to look good in the wear-ower-wear comparison."

year-over-year comparison" to the depleted 1991 report, Weil

Users, looking to the fruits of the coatly labors, were even

'M NOT SURPRISED, just relieved. I'm glad to bury 1991 — and so, I suspect, is [IBM Chairman] John Akers."

STEPHEN DUBE SHERWOOD RESEARCH GROUP

servative estimates.

The firm also reported an an-nual loss of \$2.8 billion, on reve-oue down 6.1% to \$64.8 billion — the first full-year IBM reve-nue slide since 1946 and the first

While Smith would not quantify potential layoffs at DEC, analysts' estimates last week ranged between 15,000 and 20,000.

Integrated net control tools bow

Applications arrive nor Lathauere: a managed: SNMP-compatible network dev nanagement, trouble ticketing, perfor-rock administration parter 1992

ility: Second-quarter 1992 1995 to \$12,995 ti-Packerd's Operaciew Extensible SNMP Agent: to managed, planforms: HP-UX, San Sparcatations

mat: Monitoring of health and usage levels of data-thed peripherals, CPUs and applications. Threshold constic response to events. attacress personne to events, biblity: Now \$1,000 per agent russ Center, Inc.'s Nell Master: russ managed: IBM SNA, Unix, LANs, routers arm: IBM boets, others to come

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Last week, Synoptics Com-munications, Inc., announced Lattisware, a series of Simple Network Management Protocol (SNMP)-based applications de-signed to manage both its own and other vendors' local-area

and other vendors' local-area network connectivity devices. "Applications are exactly what we're looking for," said Chris Yates, head of telecom-nunications at UK utility Na-tional Power PLC.

tional Power PLC.
"We want to quickly start conditioning our operators to work with users and take a more overall systems approach to network management, limited of components," be added.

National Power, a Synoptica bub user, is evaluating the vendor's new Trendoware package as a way to monitor performance across the power. willn't Synoptical Conference on the power willn't Synoptic Conference on the power willn't Synoptic Unfortunately, the initial Laft.

Unfortunately, the initial Lat-tisware releases have "limited scope for users to write in their acope for users to write in their own filters, to produce reports covering a lot of network indica-tors," he added. Synoptics said future releases will be far more tailorable by users. This week, Hewlett-Packard Co. is expected to smounce Openview Extensible SNMP Agent software, which is said to include 60 preprogrammed "ob-include 60 preprogrammed "ob-

clude 60 preprogrammed "ob-icts" that deliver a variety of in-remation about HP-UX and Sun systems, Inc. SunOS serv-

'This is the first time I've n a real systems management reach for SNMP," said Frank Drabeck, president of consulting firm Communicationa Network Architects, Inc. in Washington, D.C. However, HP's system "is

Bush visits Cabletron



not a one-minute manager for you or me," Drubeck said. "You have to [understand the] concept of an SNMP management infor-mation base to run this — it isn't

expected to showcase some 44 third-party applications for Openview. One new HP partner Isicad, Inc., will surveil a link be tween Openview and its graph ice-based configuration management system, Command.

BASF tape exchange gets mixed reviews

tape drive problem. The drive's manufacturer replaced the read/ write heads at its own expense several times before we realized that it was the BASF

cartridges. BASF came in during late 1990 and promised to replace 47,000 cartridges. We waited four months before we got any, and es, users said, on the data from the old tapes

6,000 new ones so far," he said.
BASF reneged on a promise
to make several large shipments
of replacement tapes and is instend shipping 2,000 tapes a
week, he added. "At this rate, it obe copied onto new ones. ASF is getting mixed re-s so far on its response to

hop also has an additional BASF cartridges that

to Other customers land BAS's for taking care of business promptly. "We weren't lawring any problems, but BAS's came in and told us that we may have wanted to replace them free of charge," said David Moore, as the control of the co

solved the problem. "We have absolutely no complaints. We'd much rather the problem didn't happen, but being that it did, they were very customer-fo-cased and worked with us to get the data off the bad tapes." The worst seems to be over for most users. Larry J. Martin, vice president of Pound Roige, N.Y.-based Reliability Research, for-which Tracks statistics.

that the debris stays on the said and does not go any-here," Healton explained. The asson it took so long for the solient to become apparent, he ided, is that the debris' buildup pends on how much the faulty pe is used. Despite rumors to eccentrary, the problem is not dustrywide, sources said.

This Bud's for Washington

BY CLINTON WILDER

STUDIO CITY, Calif. - Forget Kelly's golden arm, Thur-Thomas' elusive moves and "we-just-missed-last-year" vation factor. The Washing-Redskins will shot down the alo Bills and easily win Super

mi Dolphins sburgh Steelers

as City Chiefs 14.0 olis Colts

ati Bengah 29.5 Atlanta Falcons Pittaburgh Steelers Dallas Cowboys

Green Bay Packers

Miumi Dolphins New England Patriots

New York Jets

Los Angeles Raide

troit Lions

w York Jets Tampa Bay Bucca Chicago Bears

Killing time The team that holds on to the ball the lo probably win the Super Bosel. That mea Washington will win, based on time of p

dominance of the American Football Conference (AFC) this year, the Bills do not rate well in Geode's book because of their in-consistent defense.

Dallas Cowboys essix Cardi

Chicago Bears

New York Giants

Phoenix Cardinals

Jelohia Eag

New York Glants

25.5 odis Colts

34.3

37.8

21.4 27.9

NFL gets 20/20 vision for analysis, strategy

BY CAROL HILDEBRAND



Patience with CA runs short CONTINUED FROM PAGE 1

vice chairman at TSC Co., a sys-tems integrator in Chicago. "It creates a lot of uncertainty and really makes the economics (of outsourcing) difficult."

oon) to Computerworld, P.O. Ben 2044, Marion, Oli 4330 SASTER: Send Form 3579 (Change of Addr



- Has a computer on the credenza but didn't want those ugly wires/in the buck.
- Doesn't know what his company's produ does or how the technology works but is
- nant about its superiority. Owns the Top Five word processors but is

afraid of losing his executive status if he touches a keyboard. . Wonders why he can't get FNN on the network cable

Rube Goldberg woulda been proud Part of the explanation offered by PR firm Teck Communications about why Pacific Bell create now area code in Los Angeles:

All the car phones called ich dialed into voice ma on transmitted by mod to beep the pag

that forwarded the calls via E-me to fax the message heard 'round L.A.: "Let's de lunch."

urces: Consultech Communications, Inc.; Gehrung Associates, Inc.; and Future Society's "Outlook "92" report; Federal Computer Week;

PHOTO GALLERY





Country r. computer club

Overheard at a DECUS meeting: *Systems should be measured in BTUs. Not British Thermal Units but in how many times you can Blame The User.

LAST WRITES

Alan Olinsky, a professor at Rhode Island's Bryant College, is computerizing the records of the Swan Point Cemetery in East Providence, R.I. As he transferred the information from some 70,000 Rolodex cards to the database he ran across the record of a man from the 1890s whose card read simply: "Cause of death - shot by Joe Smith."

WYSIWYG design by Michael Siggins

Reader file

We are a small credit company. We send a lot of 5 - or 3 -in. disks out to our users with credit information. Recently, we mistakenly sent out a 5% in. disk to someone who needed a 3 j-in. When the user sent us back the wrong disk, we noticed the package it came in was rather bulky. It turned out that the user had sent us back the 52-in. disk folded in half; apparently, the user had fit the disk into a 3 f-in, disk drive. Eddie Russell, MIS manager, San Diego, Call.

Lean and mean is in, but isn't this going a bit for?

Technology Applications, Inc., an Alexandria, Va., systems integrator, fired the company president, chief scientist and the vice president of business development in an effort to "flatten the organization and reduce indirect costs."

A COLLECTION OF RECENT PREDICTIONS BY FUTURISTS

- By the year 2000, Al systems will affect 60% to 90% of the jobs in large organizations by augmenting, downgrading or displacing workers.
- Telephones that instantly translate foreign in guages may emerge within the next 20 years
- Video cameras the size of a postage stamp (using esensors on a silicon chip) could be man factured for less than \$50 by the year 2000. To could become the "eyes" of robots,

Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zottolu or Jodie Nize at (800) 343-6474. . If we use your ideas, we'll send you a gift.

INSIDE LINES

Seeking a pot o' gold

Seeking a pole 6 good 10 HZ is a service internal to the City and the

what is retail:

Next Chairman Steve Jobs will use his keynote speech at this week's Nextwords in San Francisco to announce that the Nextset operating system will be rewritten to allow it to run on PCs powered by Intel 1486 chigh. That means the udulent program, which is due this nummer, will be able to work with millions of IBM and IBM-compatible machines, making it attractive for PC owners to integrate Next into their officer.

Macwindows multimedia

➤ Apple CEO John Sculley said at last week's Mac-

world Expo in San Francisco that his firm is "exploring the possibility" of releasing a version of its Quicktime 1.0 multimedia operating system extension that will work on computers running Microsoft's Windows. Sculley did not, however, give a timetable for such a

Synergistic urges

Data General is about to beef up the num ▶ Data Lesieral is about to need up the number of financial and human resources splicitizes available for its RISC-based Avinos line at Uniforum is Prancisco this work. Do reportedly is teaming up with Dun & Bradstreet to port a crop to page 100 persons of the books. The deal would fill a "purity" of financial soft-ware inhibiting Avinos uners and help priever D&F's reliance on the mainframe market, one source said.

Staying active

Osaying settine

The only way to get a portable with an active matrix scens in to a buy a lasary AC-powered system.

The scenario of the sce

Waiting for the paperwork

Presence and their pages were in System 3600 com-puter, NCR had koped to announce this week at Uni-forum a handful of best customers for its high-end, microprocessor-based System 3600 computer. But the customer releases didn't come through in time for the show, so NCR had to settle for other planned an-nouncements, including a partnership with Procuse Cerp., which will port its CASE tools to the System 3000 platform.

Soot patterns. The revent sensitivities that it virus not a und in attack The revent sensitivities that it virus not a und in attack The revent sensitivities. Us, Sandifyers expending the reason particle. Us, Sandifyers expending the reason particle. Us, Sandifyers expending the reason particle. Us, Sandifyers expending the reason particle and reason particle and

Sprint has two good reasons for bringing its Frame Relay to market so fast.

One, you need it. Two, it'll drive AT&T nuts.

By now you probably know all the benefits of Frame Relay by heart. All you've been waiting for is someone to make it a reality. Well, now your waiting is over. Because Sprint's is the first major carrier to bring Frame Relay to market.

Why did we do it so fast? For starters, we knew Frame Relay's bandwidth on demand capability could meet your application needs today. As well as tomorrow. We also knew you needed a cost-effective way to achieve enterprise-wide connectivity. And by the way, we knew Frame Relay could potentially put thousands of AT&Ts* private lines in jeopardy. How many more reasons do we need?

To put Sprint Frame Relay, with a wide range of access options, to work for you, call 1-800-736-1130 right now.



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